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CANCER

RELIEF OF PAIN AND POSSIBLE CURE

BY

SKENE KEITH, M.B., F.R.C.S.Ed.

AUTHOR OF "INTRODUCTION TO THE TREATMENT OF DISEASE BY GALVANISM," "ELECTRICITY IN THE TREATMENT OF UTERINE TUMOURS," "GYNÆCOLOGICAL OPERATIONS"

AND

GEORGE E. KEITH, M.B., C.M.

AUTHOR OF "TEXT-BOOK OF ABDOMINAL SURGERY" WITH MR. SKENE KEITH

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To

THE GENERAL PRACTITIONERS

OF THE UNITED KINGDOM

FROM WHOM

WE HAVE RECEIVED MUCH HELP

THIS LITTLE BOOK

IS DEDICATED

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PREFACE

We give the following pages as a contribution to the treatment of the most difficult subject in medicine or surgery, not as a finished work. They comprise the result of nearly five years of experiment conducted on the same lines; and as we have in addition fifteen years of experiment in other directions, we know many of the difficulties the experimenter has to face. We have tried to keep to facts and have entered into no theories, though originally we did try to work from them. To avoid being too discursive we have not given all the cases we have treated, but have included all which appeared to give any information. The treatment is not suitable for all cases of cancer, and we hope that others will help us to discover which are the cases it is likely to cure and which should be attacked in some other way.

Practically all have been treated by ourselves or by Miss Gertrude Keith, L.R.C.P., etc., who, from her position as late Medical Officer to the Church Army Dispensary, was able to obtain a number of patients suffering from cancer.

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I

THE experimental treatment of cancer bristles with difficulties. Some belong to the experimenter and others to the nature of the disease. It may seem strange that so many claims have been put forward that a cure has been found, but to us the explanation is simple, and lies in this, that a certain amount of temporary improvement can be obtained in quite a number of ways. This does not, however, hold good in the acute cases. If a doctor has come to the conclusion that a certain line of treatment may be successful, or accidentally finds improvement after a certain line of treatment, and commences to try it on a case where the disease is progressing slowly, with at first evident improvement, he quickly hopes that he has made a discovery. Cases may show signs of improvement for a number of weeks,

so that there is time to treat several others before the experimenter is able to realise that his first case is not doing well. It would be such a great thing to discover a cure for this disease that it is difficult not to be led away by apparent early successes, and the stages are, first hope, then belief, and nowadays unfortunately too early rushing into print.

Fortunately for us, our first experiment—it was with electricity on a rapidly growing cancer of the cervix uteri—relapsed quickly after having commenced to improve in a very noticeable manner. This was twenty years ago and was a most useful lesson. It was repeated some years afterward when great hopes were aroused by Dr. von Mosetig Moorhof that the area of infection could be cut off by injecting pyoktannin round a growth that was circumscribed, and in this way make an immune ring of tissue. It was tried on a suitable case of return in the scar after the removal of the uterus by the vaginal route for cervical cancer. The injections gave rise to some general dis-

turbance, but the effect on the growth at the beginning was extraordinary, and far surpassed anything we had seen. Unfortunately the result resembled so many others, though we had the advantage of obtaining a visit from Dr. Moorhof to make sure that his directions were being correctly carried out.

At the present time, with every recognised form of treatment, one can only hope for a permanent recovery, even after the most extensive operations, but the dread of return is ever present. Unfortunately there is no certainty that the disease will not return; and we do not yet, in spite of the promising results we have obtained, consider that there is at present any certain cure for all cases of cancer.

So much for the experimenter. The disease itself varies in such an extraordinary manner that it does not seem to us probable that one line of treatment will ever be discovered that will make a permanent cure in every case. We doubt if any doctor has ever seen two cases run an identical course. There

are groups that run on identical lines as compared with other groups, but individual cases vary, and as an extreme instance of this may be taken cases of scirrhus cancer of the breast. In the case of a fresh-complexioned young woman of thirty, the disease will kill within a year to eighteen months, no matter how early an operation is performed, while an apparently similar amount of disease may be discovered in a lady of seventy, and if left alone will do no harm, though the pathological report of both cases would be scirrhus cancer.

Again, taking these extreme cases, any treatment of the first must end in disappointment, but is safe to this extent, that no undue hopes are formed, the disease being so acute, while treatment of the second might easily lead the experimenter into false hopes. Indeed, a short time ago some treatment was advocated on the strength of two cases, both elderly men, where doubtless the character of the disease had evidently much to do with the apparent improvement.

When the disease varies in the extreme way that it does, it is impossible for any private practitioners to obtain and treat a large enough number of cases to be able to dogmatise. A sufficient number do not come before him, and if they did, he could not afford the time, as most would be hospital cases, where at present the hospitals do nothing. One has, therefore, to bring any promising line of treatment before the profession in an unproven and more or less immature condition. At the same time it is foolish to be in a very great hurry to bring forward anything, however promising, until it has been tried for several years.

If there is no return three years after operation, it has been arbitrarily taken that the case may be considered to be cured. We, as well as others, think this much too short a time. Still, as three years has been taken as a sort of standard, we are of opinion that that should be a minimum time to carry on an experiment before publishing.

Improvement is more usually apparent in

cases where there has been a certain amount of wasting. Cancer is, as a rule, even in the fairly early stages, accompanied by loss of flesh, and if this loss can be arrested, which can frequently be done by treatment which does not affect the actual disease, improvement will be seen. Along with this improvement in the general condition there may be also a certain amount of lessening of the size of the growth, but when the disease reasserts itself, as it must do if no curative agent is brought to bear on it, the general health and weight quickly go down. Indeed, with many of the so-called remedies, temporary improvement is gained in spite of the disease.

When a patient suffering from cancer has lost weight, it is essential that the use of the remedy alone should result in increased weight of the body, not by acting on the general health directly, but by lessening the activity of the disease and eliminating the cancerous poison from the system, and in this way allow the patient to recover, part at least, of the weight

he has been losing. It is entirely insufficient to treat only the symptoms, but at the same time, when any remedy is being used which has, or appears to have, a beneficial effect on the disease, it is very advisable to assist in every way one can to bring up the body weight, and, by improving the general condition, place the patient in as favourable a position as possible to battle against the disease.

At the present, and not for the first time, much attention has been given to the diet of patients suffering from cancer. Especially they are warned to avoid the use of red meat. This is quite right so far as it goes, but if this be all, the patient may as well be allowed to eat meat once or twice a day if he wants to, for abstinence of this kind will not appreciably affect the disease one way or another. A diet composed principally of beef or mutton would undoubtedly cause increased growth. It is, however, of the very greatest importance to "feed up" the patient, but there is a right and a wrong way of doing this. Strong meat,

might almost say impossible, to give exact general directions, because what one man may gain by giving up his business temporarily, another may lose by having too much time on his hands to think about his illness.

It has seemed to us that it is possible for a patient to continue to lose weight although the visible growth improves. This appears to be due to the amount of what may be called saturation of the patient with the cancerous poison.

We have now been working on one definite line for nearly five years, and believe that we have been able to make a foundation for others. By means of the treatment to be described we feel certain that we have been able to relieve pain, prolong life in comfort, and in some cases, so far as the time elapsed will show, to have cured the disease. This is our belief. Putting ourselves in the position of the general surgeon who seems to be imbued somewhat with the idea that surgery is right and everything else wrong, we at once say, What about

the diagnosis? If a case has been cured without operation and, therefore, without a microscopic examination of the growth, then, of course, the diagnosis must have been wrong! We ignore the fact that the microscope does not always tell correctly, or perhaps we should rather say, that what the microscope shows has been wrongly interpreted. Therefore it will be necessary to bring forward very many cases of cure without operation before the surgeons will begin to believe in its possibility, and the large numbers can only be obtained by publishing what we have done and thereby inducing others to work on the same lines. Putting on one side the cases we believe we have cured, there has been a very large amount of relief obtained. We do not believe that it is advisable to try to prolong life in misery, but we do believe that it is worth while to try to relieve the sum of human misery, and this we have been able to do; life has been prolonged and relief obtained in a very large percentage of the cases treated.

It is remarkable that when radium was first discovered, and almost before more was known about it than that it was new and expensive, the conclusion was arrived at that a cure for cancer had probably been found. This conclusion seems to have become a certainty in many minds when early improvement, which has already been referred to as common, was reported. It would not be possible to have any more conclusive proof of the hopeless state of ignorance of everything connected with the treatment of cancer. From Germany we had a report that a serum had been discovered, and it was supposed that here at last an advance had been made. It was said that one case had been cured and that others were doing well. We made inquiries, but could not hear of any satisfactory results; there was simply the early improvement followed quickly by the usual sad ending, and the one good case was dead. About the same time news came from Paris that a microbe, which was always to be found in cases of cancer,

had been located and that a serum had again been made. Along with the injection of this serum great reliance seems to have been placed on surgery, and again there was one special case, also dead. The microbe does not seem to have any claim to be the microbe of cancer, and the serum is a thing of the past. Since then we have noticed that yeast has been recommended from the same quarter, showing that this surgeon is in a great hurry. We experimented with yeast for a year!

The latest of all the "cures" is trypsin. Dr. Beard of Edinburgh found by experiment that trypsin was wanting in cases of cancer, and about the same time it occurred to Dr. Shaw-Mackenzie that there was probably something of the kind wanting. It was natural to think that a likely experiment would be to administer trypsin, and by putting back into the system what the cancer apparently took out, check or eradicate the disease. This seemed such a simple and sensible plan that it is not to be wondered at that the originators

were carried away by the early improvements and allowed it to go out broadcast that at last a cure, and one founded on a scientific basis, had been discovered.

We gave trypsin a very extensive trial, but were completely disappointed in its use. We also came to the conclusion that it was by no means a safe remedy, and in several cases, especially in those where there was ulceration, it seemed to cause more rapid destruction of the tissues and corresponding loss of strength.

In connection with trypsin it may be noted that free hydrochloric acid in the stomach is said to be wanting in cases of cancer. Its administration does not appear to have any effect one way or the other.

Treatment by X-rays we have not tried ourselves, as we consider that good results are more likely to be obtained when this treatment is left to the electrical experts. There seems to be no doubt that the rays, properly applied, do more in some cases than the temporary good so often referred to. Much

harm was done at first and the sufferings of many patients were enormously increased by the formation of extensive burns. Now the treatment is carried out with much greater care and knowledge, and at the worst it need not do any harm. The usual difficulties of the proper selection of cases and obtaining them sufficiently early before there is general infection are, of course, met with in this as with all other forms of treatment.

It is interesting to compare the different results obtained from these two little-known agents, radium and the X-rays. Before almost anything was known of them, both were hailed as likely to be curative agents. It has been said, "Tell us the cause of cancer and it will not be long before the cure will be discovered." This is not the course medicine has followed in the past. Treatment has always come first, and even now, where the cause of a disease has been found out, treatment is much more preventive than curative. Take typhoid fever, for example: we know how it can be prevented but do

we know any more how to cure it than we did twenty years ago?

With the present state of our knowledge about cancer it does not seem that, if we knew the cause, we would be very much farther on. At the same time any information may be useful, and it may be, that the discovery of the cause will lead to the discovery of the treatment. But what is cancer? What do we know about it? If we use the words "malignant disease" to describe it, we probably say all that is known, a malignant, malevolent disease, and one that sooner or later ends in death. There is nothing else definite about it, and even this is scarcely correct; for, as has been already mentioned, the course may run so slowly that the term "malignant" can scarcely be applied to it.

There is hardly one question which can be asked about cancer which cannot be answered and proved both affirmatively and negatively. For example, is it hereditary? It is probable to some extent that it is, but why should some inherit and some escape; and in cases where

there is no history of the disease, how are we to be sure that the patient's statement is correct. Even at the present day there is a tendency to conceal the disease. Fifty years ago this was apparently always the case. Cancer was looked on with loathing; it seemed to have been thought a disgrace, and a thing not to be mentioned. We have in several instances discovered a strong family history where at first the patient was certain that there had never been anything of the kind in the family.

It is generally supposed that cancer is increasing, and statistics go to prove that this is so; but can we be sure of our statistics? It has been already said that any case cured without operation and microscopical examination is looked upon with a large amount of doubt. If this is so about cases where every possible care has been taken, is it not also probable that statistics are open to doubt from the same reason? Besides, medical education has so enormously improved in the past twenty or thirty years, that when statistics of the present day are compared with

those of some years ago, the comparison is made between two sets founded on very different foundations. If the disease is really increasing, a very promising starting-point for the inquiry into its cause is at hand. The question one is most frequently asked after that of heredity is, whether there is any risk of infection. We do not believe that there is any, and we have never seen anything which would cause us to doubt the statement that there is no risk, but the question crops up now and then, and occasionally it appears to receive a certain amount of support from medical men.

Is cancer more prevalent in one locality than in another? Statistics rather point to this being the case, but the evidence at present is not very strong.

A vexed question is that of the nature of the disease: is it a local condition, or is it a general one? By taking individual cases it can be conclusively proved that it is both general and local. Taking our former example of the young healthy woman with rapidly

growing cancer; early operation, no matter how early, totally fails to even check the disease in this special type of case, therefore the disease may certainly be said to be a general one. But it as certainly must be a local one if we reason from the case of removal with no return many years afterwards. It seems to be most generally held that the disease is a local one and is more likely to occur in those who have a predisposition to it; *i.e.* have a family history. In the great majority, the predisposition is not sufficiently great to cause recurrence if the disease is removed early, unless the patient is placed under similar circumstances to those which were present when the disease started in the first place. If the disease were not frequently a local one in the beginning, surgery would be of little use except to remove symptoms; but as many cases are, so far as is known, permanently cured by operation, there can be no doubt on this point of the local nature of the disease in many cases. Many doubt the curability of cancer

by operation, but it is a certainty that it can be done in certain cases. The difficulty is to know beforehand which cases are likely to recover, and in which there is a likelihood that there will be a return. The first would naturally be the most suitable for experiment. A case which we have reported elsewhere points strongly to the local nature of the disease, with a tendency to return only under special circumstances. We removed a breast for a scirrhus cancer which had been growing for two years. The axilla was not cleared out. A year afterwards the patient received a slight blow on the chest as some one was helping her on with her cloak. A small nodule appeared near the scar and was removed. In another year, while dancing up and down a little child, a blow was received from the child's foot, and a second nodule had to be removed. Ten years after this operation, a third nodule had to be taken away, an old aunt who was insane having struck the patient with her elbow. It would be interesting,

though of course impossible now to know, if a very extensive operation had been performed in the first place, what would have happened. Would there have been no return, or would the first injury, acting on a part devitalised by loss of nerve supply, have lit up the disease acutely? Certainly clearing out the axilla would have had no effect one way or the other. If the cancer were entirely local, extensive operation might have prevented recurrence, while, on the other hand, if there were any general tendency, recurrence might have been more serious. Isolated cases such as this one can be made to prove anything, and the more one compares single cases, the more difficult it is to come to any conclusion. It is for this reason that we hold that it is essential to have an enormous number of successes before it can be claimed that a means of cure has been discovered, and this is why we are anxious that the treatment we advocate should have a wide trial. Could we have carried it to a successful conclusion ourselves, we would

have preferred to do so, but this would have required an unlimited amount of time to devote to the subject and an unlimited amount of material, such as is at present wasted, fortunately through no one's fault, at the hospitals and dispensaries all over the country.

The symptoms vary and the character of the disease varies so much that it is difficult to make comparisons. They vary with the part of the body in which the disease is situated, and with its rapidity of growth; or they may be due to the mechanical presence of the growth, or to something in the mass itself. In some parts, there may be ulceration, in others there may be pain actually in the growth, or from pressure causing pain or perhaps dropsy of a limb. On the other hand, there may be little or no pain, simply progressive weakness, which is said to be even more distressing than actual pain. Emaciation may be the most noticeable symptom. Among the laity it is commonly supposed that there is a special expression or appearance which denotes

cancer. The so-called cancerous cachexia is not of much importance, as it does not appear in the early stages, but only when the disease is well advanced.

It is impossible for any one experimenting with the treatment of malignant disease to have very good results, because only the worst kind of cases and ones which have already tried the recognised methods of treatment come before him. Even if one did happen to have a succession of early cases, it would not be easy to advise an experiment rather than removal of the growth followed by the treatment. It is very seldom that a patient absolutely declines operation unless under special circumstances, such as some intercurrent disease. One sad case occurred a number of years ago in the practice of the late Dr. Thomas Keith. A lady consulted him on account of a typical cancer of the breast, the case not being a particularly favourable one for operation. She was very anxious to live until a certain date, as if she died before that time,

her children would be unprovided for, and what she was specially anxious to know was, whether he considered that her chance was better, taking into consideration the risk of operation, if she had the growth removed or not. He very strongly advised operation, and even at that time, before the days of Listerism, was able to tell her that he had never had a death after this operation; but she was afraid, and in the end elected to try and live out the time without running the operative risk. She failed by a very few weeks, but doubtless would have been glad to try any experiment which did not involve risk. It is very discouraging when case after case comes late, and one sees a number where one should harden one's heart and decline to try anything. Yet it is difficult, both because patients are so anxious to try something, and also because it is difficult to know when a case is absolutely hopeless: one such will be found recorded in No. XXII.

It is hardly possible to give even general rules as to which cases to reject, so much de-

pends on the experience one has gradually obtained; but it may be said that patients much over sixty-five years of age and who look their age are not likely to turn out satisfactory cases. If the pulse is much over 100 a minute, the case is not favourable, and if treatment does not bring it down to 80 within a month, it is probable that the result will not be good. The quick pulse must be taken as an indication that the disease is in a well-advanced state, with more or less general infection. Any one who is much emaciated must be looked on as doubtful for the same reason. There are some cases which must be left absolutely alone, — ones where the disease has advanced so far and the vitality is so low that the patient cannot live more than a very short time; but it is not always easy to tell such cases, and when in doubt, unless there is much pain, it is probably best, on the whole, to leave the case alone and not run the risk of raising false hopes.

To come back to the question of diagnosis:

this will keep back at least for a time any experimental treatment, because in all accessible parts diagnosis is more easy and certain, than it is in those cases where the disease is situated either in the chest or abdomen. Besides, in the more get-at-able parts operation is more readily advised and agreed to. Internal growths, as being either less accessible to surgery or beyond its reach altogether, are, therefore, more likely to be treated, and if the patient recovers, there will always be the doubt as to the nature of the growth. It is also the case that such internal growths are not as a rule discovered until the disease is well advanced. We are prepared for its being said that the cases we have considered ourselves to have cured have been made well because there was an error in diagnosis. This does not alter the fact that patients condemned to die by others have been cured by means of our treatment.

When treatment is attempted after surgery has failed to cure, this failure shows that the disease has either always been or has become

of a general nature and is therefore more difficult to deal with. In such cases the diagnosis has already been made.

Treatment may also be given immediately after an operation to increase the chance of a permanent cure, and there can be little doubt but that this is a good thing to do when treatment does not involve any risk. Naturally treatment is most likely to be successful after a first operation than it would be after several secondary ones, but the difficulty would then be to know where the credit was to be given, to the operation or to the treatment. To treat after a return, or a second operation, would, from the purely interesting point of view, be the more satisfactory way, but would not be so good for the patient; and if a cure resulted, there would still be doubt, though a much weaker one, for the second operation might have been more successful than the first. To a certain extent this may be compared to the operation for appendicitis. If the operation is performed after the first attack, we

cannot be sure, as a rule, that there would have been a second attack of inflammation.

Whichever way you look at it, there are difficulties, and it is very perplexing to know what is the best thing to advise. One has only to give the advice which seems best; statistics and proofs will come later.

Attention must be given to the part of the body affected, and we are inclined to think that treatment will follow on this line rather than on exact microscopic differentiation, though this is perhaps only another way of saying that the pathological condition varies with the situation of the disease. We have found, for example, that X-rays appear to have a more beneficial effect on a cancer primarily in the skin than does our treatment by injections. Cancer largely involving a vital organ, as, for example, the stomach, is much more difficult to treat by any method than it is when the disease is situated in a part of the body less necessary to life. For our treatment we very much prefer to have to do with cases where

there is a distinct growth as distinguished from cancerous ulceration. Certainly in Case XXX, which was probably a cancerous ulceration of the tongue, the disease has been cured, but this case was treated in a very early stage, and this one case is in no way sufficient to counterbalance our opinion that a permanently good result is not to be expected in the ulcerative cases. The treatment by X-rays either alone or in combination would probably be more likely to effect a cure.

In the present state of our knowledge we do not think it advisable to leave any growth which can safely be removed, unless perhaps the disease has been discovered in an exceptionally early stage. In such a case the delay of three or four weeks would, at the very worst, not do much harm, and several such cases would do more to show what the treatment was worth than almost any number of late ones. It would not be necessary to carry on the treatment for so long a time as a month unless there were marked improvement very quickly.

The treatment which we are anxious that some of the profession should try, — and we hope that when it is tried the attempt will not be limited to one or two cases, because, as we have already said, we do not expect any one line of treatment will cure all, — may be described as in a way old and in one respect new. Among the many drugs we have experimented with in the past is the commonest of all cancer remedies; viz. arsenic. It was given as a routine treatment in Edinburgh twenty-five years ago in inoperable cases, and apparently gave a certain amount of relief. Having this in mind, we tried it hypodermically shortly after this method of its administration came to us from Italy. There was quite a considerable amount of difference in the effect obtained when given by the mouth and when injected. The immediate improvement after injection was decided and pain was lessened, but this gain proved to be only temporary, and the experiment was not gone on with for a long time. Iodine is a drug of which great

things seem to have been expected years ago, though not in the treatment of malignant disease, and when Merck of Darmstadt put iodipin on the market, we thought that it was worth while giving it a trial. The results were somewhat similar to those obtained by the hypodermic injection of arsenic. It occurred to us to combine the two. Immediately there was so much change for the better that we took this combination as a basis. Along with it, either separately or in combination, we have tried a great number of other agents, some with a reputation in the treatment of cancer, others not. For example, we used trypsin for a year, hypodermically and separately of course, before we finally discarded it as being not only useless but also dangerous. Yeast was also tried for about a twelvemonth. Without exception we tried these two — trypsin and yeast — for a longer time than any of the others, the first because it really seemed to be so scientifically correct, and the second because it ought to have done good if the theory on

which we were working had proved to be a correct one. Now we have given up all theories and limit ourselves to trying to relieve or cure this disease.

Some years ago Dr. Lovel Drage wrote a most interesting paper on the treatment of cancer with cinnimate of sodium. This, like arsenic, is one of the drugs which formerly had a reputation in the treatment of cancer. Dr. Drage's injections were followed by a reaction. We tried the cinnimate of sodium, but failed to obtain Dr. Drage's results, but this may be because we did not follow his directions exactly, as we tried and succeeded in avoiding the reaction. This drug is the only one we have found to be a help when added to the arsenic and iodine.

At first, we began with a small dose of the arsenic, twenty minims of the ordinary hypodermic injection of arseniate of iron. We tried doubling the strength of the arsenic injection, doubled again, and then again, but the last increase in strength did not appear to be of any

assistance. In only one case has there been any symptom of arsenical poisoning, and even then the symptoms were slight. Messrs. Squire have now made for us the injection in two strengths, which will be more fully described later. It may be more satisfactory to give exact directions for making the injection from the separate ingredients with what we considered a standard dose. This strong standard injection consisted of a solution of iodipin in oil, arseniate of iron, cacodylate of iron, and cinnimate of sodium. The iodipin is a 25 per cent solution in oil.

The arseniate of iron contains $\frac{1}{4}$ gr. of iron and $\frac{1}{45}$ gr. of arsenious anhydride in 1 c.c.

The cacodylate of iron contains 3 gr. of iron in 1 c.c.

The cinnimate of sodium is a saturated solution containing $1\frac{1}{2}$ gr. to the cubic centimetre.

The emulsion which is formed is a mechanical mixture and is not a new compound.

The average proportions of the emulsion

which we have used most are as follows: one drachm of the iodipin and twenty minims each of the other three. If the mixture is made by shaking by hand, it is advisable to thoroughly shake together the iodipin and cacodylate first, then add the cinnimate of sodium and finally the arseniate of iron. The reason for mixing in this order is simply that it saves a great deal of shaking. If the mixing is done by machinery, all the ingredients can be put in together. These proportions may be taken as a standard, but we are accustomed to vary them materially in some cases. This is a matter more of experience than anything else; it is difficult to give even general directions, but it may be taken as a general rule that in all abdominal cases the amount of arsenic should be lessened and in uterine ones increased.

The dose varies also. Some patients appear to do well with 5 c.c. of the emulsion given every second day or even every day, while it seems to be advisable with others not to give more than 2 or 3 c.c. This is also very much a matter of

experience. One indication of the strength of the dose is to be found in the immediate effect of the injection. If the patient feels sick at once, it is probable that the dose is too large, and we are accustomed to reduce it to the point which will avoid this feeling of nausea.

Sooner or later a more or less strong odour of garlic will be noticed in the breath; in some, it is very noticeable, and as a rule the odour does not appear in the early stages of the treatment and only when the disease has begun to improve. We hoped that some indication would be obtained from this sign; for if the injection is used in a non-malignant case, the odour is very strongly noticeable after the first injection. This we discovered in the experiments on ourselves. Like everything else connected with the disease, the appearance of the odour is not to be depended on, as occasionally, though very rarely, it appears at the beginning of the treatment of a case of undoubted cancer.

With the exception of the feeling of nausea

if the dose is too large, and the odour of garlic in the breath, the injections should not have any disagreeable effects.

Any serum syringe can be used. We have found Record's as convenient as the all glass, and while it can be kept clean as easily, it is not nearly so liable to break, and this is a consideration in several ways. Another objection to the glass is that spicules of glass are apt to crack off from the end of the piston and, passing in with the injection, set up irritation and lead to the formation of an abscess. The needle should be kept very sharp, as it makes a great difference to the patient; it should also be put in quickly. It may seem unnecessary to go into such trifles, but it is really wonderful what a fuss can be made over a little matter like this of an injection. When they are being repeated often, little details are worth attending to. It is not always easy to keep the needles sharp. Apparently there is a difficulty in getting a good edge all round, and if several are sent to the instrument maker at a time, a pro-

portion will come back no better than when they went.

Thorough bathing with very hot water after an injection helps to prevent bruising and keeps the parts soft; or a good liniment may be rubbed in. The injections are to be made subcutaneously, not into muscle, as with the arseniate of iron alone. The most convenient place, as a rule, is the outer part of the upper arm; next in order come the buttocks, abdominal wall, and outer parts of the thighs. But the best plan is to try to find the part which gives least trouble.

The injection can hardly be put in too slowly. When it is injected quickly, it is apt to make a hard swelling and causes much more pain. The very great majority of patients say that there is little pain when the treatment is carried out carefully. It is unnecessary to put on any dressing; but should there be oozing, a small piece of sticking plaster may be used.

We aim at a cure, but in the present state of the treatment we do not expect that one can be obtained often, at least so long as the treat-

ment has to be carried out on very advanced cases such as we have had to deal with up to the present.

Putting aside the possibility of cure altogether, the treatment has great advantages; and it does not interfere with any other method of treatment. In several cases we have combined it with the use of X-rays; in one with decided benefit, though in another severe suppuration resulted from their use. With very few exceptions there is always, at the very least, the temporary improvement which seems to be common to so many forms of treatment, but this improvement, when it is not permanent, lasts much longer than in any other form of treatment we are acquainted with. In other words the natural expectation of life is prolonged, though, of course, this must be a matter of opinion unless the time gained is very well marked. We had a good example almost as this was being written. The husband of a lady who had been unsuccessfully operated on six months before for abdominal cancer

asked a doctor who had seen the case at the time of operation what condition he would expect his wife to be in, and the answer was that he would expect that she would be sinking. Instead of this she was steadily gaining weight at the rate of one and a half pounds a week, due presumably to the injections. Roughly we would be inclined to put the prolongation of life at, on the average, double what it would have been. The patient lives longer, and at the time when he would have been on his death-bed, he is in good health, and then when the end comes, it comes more quickly and much more easily.

Pain is such a common symptom of cancer that its relief without having recourse to morphia is a great boon. We do not know why these injections should relieve the pain of cancer, but they do it in a most wonderful manner when the pain is in the growth itself. One injection will often give considerable relief, and less than half a dozen will remove the pain entirely in the great majority of cases. This

relief can only be expected to come so quickly when the pain is actually due to the cancer itself and not when it is due to pressure or when the disease is of an ulcerative character. In such cases the pain is relieved more slowly, as one would naturally expect.

We would strongly recommend the use of the injections after operations. No surgeon is in the position to say after any operation for cancer that there will certainly be no recurrence. He may tell his patient that the disease has been so thoroughly removed that it can never come back, but he knows in his own mind that the patient is not safe. There seems to be little objection to using the treatment after operations. Twenty-five or thirty injections do not inconvenience the patient much; they give him confidence that the tendency to recurrence has been lessened, even though he knows that the disease has been most satisfactorily removed. The treatment does not keep him away from home, as his own family practitioner is as able to give the injections as the sur-

geon who performed the operation; and altogether, while there is little to lose, there may be a great deal to gain. It has already been pointed out that it is impossible to prove that he gains immunity, as that may have been already given by the surgeon, but most patients do not trouble much about such things: to be cured is sufficient.

We have made no experiments on animals, as malignant disease seems to be one of the diseases which varies so much that it cannot be compared in animals and in human beings. It does not appear, therefore, that much is to be gained by attempting to cure malignant disease in an animal, in the hope that if this can be done, a similar line of treatment will tend to cure human beings. This is, however, one of the methods which is looked upon as scientific at present, and being scientific, any information gained by this means, is supposed to be of more value than any which may be derived from empirical experiments on human beings. This does not affect the question of

vivisection in the slightest, though, had we tried the injections first on an animal rather than on ourselves, we would have been brought under the law as violators of the antivivisection act!

CASES OF CARCINOMA

Case I, a widow æt. 60, had been a hard-working woman all her life, but had to give up her work, that of a domestic servant in a boarding house, four and a half months before she was seen on the 19th of May, 1903. She had first noticed some swelling of the breast rather more than six months before, but when she went to the Cancer Hospital in the middle of April, the disease was too far advanced for operation. She attended as an out-patient once a fortnight, but it was very evident to her that she was not wanted. A week before we saw her, she had gone to Charing Cross Hospital, and the friend who accompanied her was told that it was a very bad case of cancer, that she would not live more than six weeks, and that it was hopeless to do anything. She had to give up her work partly on account of the pain

in the growth, partly from feeling too weak to do much, and also on account of not being able to move her arm easily, as the growth in the breast projected far into the axilla.

She had had rheumatic fever twice when young, there was a loud aortic bruit, and she was a martyr to chronic bronchitis.

So far as she knew none of her relations had died of cancer, but she did not appear to know much about any of them.

On examination, the growth was found to be a very large typical scirrhus cancer of the breast, measuring $8\frac{1}{2} \times 7$ inches, and it had projected into, and filled the lower part of the axilla. As this part became reduced in size, it was found that there was a large mass under the pectoral. There were a few slightly enlarged glands in the upper part of the axilla. The skin was broken to the extent of 2 inches by $1\frac{1}{2}$.

Injections of 5 c.c. were begun at once and were repeated daily; they did not contain the cinnimate of sodium, and the arsenic was weak.

When the patient came the second day, she mentioned that she had had less pain. We were not inclined to lay much importance on this statement, but when at the end of a week she said that the pain had completely disappeared and that she was feeling in every respect better, it was encouraging. On the 4th of July, six weeks after the treatment was begun, the woman went back to work, and her mistress said that her work was hard, as they were very busy at the time. On the 27th of August, she had to give up on account of shortness of breath. On the 29th there were symptoms of heart failure, and she died two days later. The doctor who saw her did not consider that the cancer was active, though there was a large mass remaining, approximately about one-half the size it had been three months before, but he ascribed the death entirely to the condition of the heart.

What is most noticeable in the case is the wonderful relief from pain and the temporary improvement in health and strength in spite

of the condition of the heart. On the 19th of May this patient was suffering great pain, was unable to work, and was simply waiting for death to release her from her misery. The treatment freed her from pain, and allowed her to work until within four days of her death; under all the circumstances not a very bad result.

Case II, æt. 59, was seen on the 30th of June, 1903. This was an example of a slowly growing cancer, as the right breast had been removed ten years before. Since then there had been seven operations. The patient was a soft, lymphatic woman, much subject to bronchitis and with a chronically dilated heart. To say that her tissues were waterlogged, perhaps best describes her condition.

Five nodules were to be seen, — one in the scar, one in the pectoral, two above the scar near the axilla, and the largest, the size of the last joint of the thumb, was above the clavicle. The doctor who had performed the operations had said that nothing more could be done, and with this we were entirely in accord.

In the first twelvemonth, seventy-six injections were given. All the nodules had become smaller, and the one in the muscle had disappeared. On former occasions the growth had been rapid and the patient and her friends were much surprised at the difference. The general health had been fairly good, but the patient was much handicapped by the condition of the chest. In February, 1905, one nodule was a little larger, otherwise there was no change. In the end of March, the patient died quietly in her sleep. It is difficult to say how much the treatment did for this patient. It certainly prolonged her life and improved her general health, while the disease, so far as could be seen, was held in check. The patient was a very bad subject for any treatment, and on the whole, the result may be considered not altogether unsatisfactory.

Case III, æt. 32, was seen in September, 1904, and the following history was obtained. A swelling was first noticed in the left breast in October, 1903. This was diagnosed to be

an innocent growth, and nothing was thought of it until the patient was seen again in the end of March, 1904. The breast, axillary glands, and part of the pectoral muscle were removed in April, and in July a second operation was required. Both operations were performed by a well-known surgeon.

Injections were begun in September, though the husband was warned that the case was a very unfavourable one, as, in our opinion, it was typical of those where the disease returns quickly in spite of all treatment. Already, two months after the last operation, there were three nodules in the muscle, and one near the scar. The odour of garlic was very noticeable even from the first injection.

The treatment did not appear to have any beneficial effect on this case, though there was perhaps a little improvement at first, but not sufficient to be of any account, and the patient died toward the end of November, one month over the year after the growth was first noticed.

Case IV, æt. 33, was seen on the 24th of Sep-

tember, 1903, with a hard ulcerating scirrhus cancer of the right breast.

Her mother had died of cancer.

The patient complained of discomfort rather than of pain; she had lost flesh, and felt weak and miserable. On examining the breast, a hard mass the size of a billiard ball was felt. The growth was adherent to the ribs. There were also two ulcerations, the larger one the size of a shilling. The axilla was filled with enlarged glands and a few nodules could be detected under the pectoral muscle. No enlarged glands could be found in any other part of the body.

The patient stated that she had noticed the growth for about one year, and that latterly she had fallen away rapidly. She had consulted four doctors, and all were agreed that the case was too late for operation, and advised that nothing could be done.

Fifty-nine injections were given in all, the first on the 24th of September, 1903, the last on the 3d of May, 1904.

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The ulcerations had healed by the month of December, and on examination in August, three months after the last injection, not a trace of disease could be found anywhere.

There has been no return in spite of the prognosis of one hospital surgeon that the patient would not live more than six months. The case progressed so steadily and so satisfactorily that it is impossible to say very much about it except that on the 12th of October, 1904, the ovaries were removed on account of severe menorrhagia. We feared that if the general health got too much below par there might perhaps be return of the malignant disease. It is possible that the removal of the ovaries has assisted in preventing the return of the cancer, but of this there is, of course, no proof one way or the other.

The patient made an uninterrupted recovery after the operation and is at present in the best of health. She still, however, feels that her right side is stiff when she stretches out her arm.

Case V, æt. 59, was seen on the 5th of No-

vember, 1903. In February she noticed a small lump the size of a sixpence near the right nipple. In July she was admitted into a general hospital, and after a general consultation, was advised to have nothing done, as the growth was increasing slowly, though, strangely enough, she was not asked how long it had taken to grow! The patient was soft, fat, and very wheezy. The pulse was 98 and she was seldom free from bronchitis. There was well-marked emphysema, and the heart was dilated. Three sisters had died of internal disease, supposed to have been of a malignant nature.

On examination, the nipple was found to be flattened out, and was the centre of a very hard mass slightly over two inches in diameter, dark purple in colour, and surrounded by numerous deposits in the skin of varying size. The skin deposits were to be found as far as from four to five inches, in all directions, from the nipple. There had never been any pain.

Sixty injections were given, and their use resulted in great reduction in size both of

the main mass and of the nodules, but not a single nodule entirely disappeared; some became invisible, but the hardness always remained. The patient died of bronchitis and heart failure after a few days' illness. It seems that this would have been a suitable case to have combined the X-rays along with the injections.

Case VI, æt. 59, was seen in the end of February, 1904. A year or two previous to this time she had consulted a doctor about a little irritation of the left nipple. Her attention was called to the breast by darting pains, and also by noticing that it was getting larger. Originally the left had been decidedly smaller than the right.

On examination on the 22d of February, a large, ill-defined, hard, flattened mass was felt in the upper and outer part of the breast, extending from the nipple, which was drawn in, to the outer margin of the gland. In the axilla there was a second ill-defined mass, and the skin over it was puckered and adherent.

The patient was informed that she had cancer and that an operation was advisable. While none of her immediate relations had had the disease, several of her friends had, and the results of their operations had been so unfortunate that she declined even to consider anything surgical. Treatment was begun on the 26th of February, 1904.

The pain was relieved after the sixth injection. Forty-five were given by the 9th of June, and there was a second course in September. The growth slowly diminished in size until there was hardly more than a small atrophied breast containing a small, apparently fibrous nodule. In the beginning of 1905 the patient began to become anæmic without any apparent reason. In May, however, ascetic fluid was found to be accumulating in the abdomen, and some irregularity in the outline of the liver was discovered. The abdomen had to be tapped, and on examination of the deposit, a few malignant cells were found. The patient lived into July.

Whether the disease was present in the liver at the time the growth was discovered in the breast, we have no means of now knowing. No *post mortem* examination was allowed.

Case VII, æt. 59, a widow, was first seen in July, 1904. Her right breast had been removed in Edinburgh for cancer three years before, and the disease returned in the scar a year afterward. There was no family history of cancer to be obtained. She suffered from severe pain, to ease which "high frequency" had been used without giving any relief. The patient was extremely emaciated, looked ill and weak, and the pulse was 112. There were several hard nodules adherent to the skin and ribs, varying in size from a pea to a small walnut. The axilla was full of enlarged glands, and those in the right side of the neck were in a similar condition. There was very well-marked bulging of the ribs with complete loss of resonance in front of the whole upper part of the chest on the right side. The

case seemed a hopeless one, and the patient was advised to go home, but she begged very hard to have something tried to relieve the pain. The first injection gave partial relief, and complete freedom from pain came after the tenth.

The nodules became smaller, and the pulse slowly fell till its rate was 72 to the minute after the thirty-fourth injection.

The patient went home to Scotland on the 31st of October, having had forty-three injections. She had put on a little weight — eight pounds — and said she felt well; there was no dulness over the chest, and one nodule only remained. The glands both in the axilla and neck could barely be felt.

It was arranged that the treatment was to be recommenced after an interval of two months, but the patient wrote to say that she felt so well that she would not come back to London so long as she felt as she did unless the pain returned. She was one of the people who always know best about everything, and her

relatives could not persuade her to move from home.

In March, 1905, she got an attack of bronchitis, and died quite suddenly, apparently of heart failure. There had been no return of the disease, nor had there been any pain.

The treatment gave this patient relief from pain, and good health for seven months, and she died from an intercurrent illness, her life having been prolonged in comfort to twice what would have been the natural expectation. That there must have been some very decided effect on the actual disease was shown by the disappearance of the nodules, the slowing of the pulse from 112 to 72, and the gain in weight.

Case VIII, æt. 63, was seen first in July, 1903. In the previous October a growth was first noticed in the breast; the arm swelled in January, 1903, and in March the red projection to be described appeared. There was no family history of cancer.

On examination, a large, hard mass, taking in practically the whole of the left breast and

running continuously to the top of the axilla, was found. On the breast there was a projection of a dark purple colour nearly two inches in diameter. The hand and arm were much swollen and were painful. Operation, which seemed to be just possible, was declined absolutely, and injections were agreed to instead. Contrary to our usual experience, they gave a great deal of trouble, hardly one being given without causing pain and swelling. The patient had lived much in the East, and stings from insects were always more trouble to her than to most people.

By the end of September, twenty-seven injections had been given, with the result that the growth seemed to be about one-half smaller.

In November the patient was much alarmed by a severe hæmorrhage from purple-coloured swelling, and consented to have the breast removed. The most noticeable point about the operation was that there was very little bleeding. To the naked eye the blood-vessels appeared to be surrounded by an unusual

amount of fatty tissue. The microscopic examination was as follows: sections were prepared from (*a*) the superficial mass, *i.e.* the purple outgrowth, (*b*) from deposit just below surface, and (*c*) from deposit in depth of gland.

(*a*) This section presents all the appearances of a rapidly growing carcinoma. It possesses no unusual features.

(*b*) This section is interesting chiefly on account of the large amount of small cell infiltration present. Areas of carcinoma invaded by small cell infiltration are quite conspicuous. There are also traces of degeneration present.

(*c*) Identical with *b*.

The interest of the case ends with the microscopical examination, as the patient became jaundiced in March, and died shortly afterward.

Case IX, æt. 65, consulted us in June, 1904. Two sisters had died of malignant disease, and in May, 1903, the right breast was removed for cancer by a first-rate provincial surgeon.

The return of the disease was rapid, as a second operation was required in four months, a third in December of the same year, and a fourth in May, 1904. Thus the malignancy was great, shown by the necessity for four operations within thirteen months.

In June, 1904, no definite growth could be felt, but the arm was very decidedly swollen, and there was a considerable amount of pain below the clavicle. Nothing could be seen or felt beyond a little fulness in the axilla and upper part of the right side of the chest. Thirty injections were given. The pain was entirely relieved after one-third of the course. In January, 1905, a small nodule appeared in the skin below the clavicle, and twenty-two injections were given.

In May, the lower ribs on the right side appeared to be much pushed out, and there was a dull note on percussion. Eighteen injections cleared up the dulness and got rid of the projection of the ribs. In July, the patient said that she could do more than she had been

able to do for years. In August, a hard growth in the skin, the size of a shilling, situated low down on the chest wall, was removed. This was the first operation in fifteen months, showing that the degree of malignancy had been much reduced. In November, a nodule deep in the neck above the clavicle, and two in the skin below the bone were noticed, and the patient was persuaded to have X-rays in addition to the injections.

By November, 1906, three courses of injections, nineteen at a time, and X-rays, had been given, and the result was that the patient was very nearly holding her own, but not quite. The disease in the neck was evidently checked, but before each course there was considerable dulness of the chest, which, however, always cleared up. The swelling of the arm was less than it had been for two years.

In July, 1907, the patient had had three courses, and shortly before she came to town the last time, the skin had broken near where the operation was performed two years before. The

ulceration healed under treatment. Shortly after going home the patient suffered from heart weakness.

Case X, æt. 50, a great beer-drinker, had a large scirrhus cancer of the right breast removed in hospital on the 31st of December, 1902. The case was one where a permanent recovery might well have been expected, as the patient was in good general health, showing that the disease was at that time almost certainly local, and on microscopic examination it was found that the malignant growth did not extend as far as the axillary glands, which were removed at the time of operation. The disease, however, returned in eighteen months; and the report of the surgeon, dated October, 1904, was as follows: "Extensive recurrence, not only beneath the scar and adherent to bone, but nodules inside the scar, and also in the skin of the axilla. I cannot advise further operation with any hope of success."

One aunt on the mother's side had died of cancer of the breast.

The patient complained of great pain over the upper half of the chest, extending up into the neck and down into the arm. The pain was most severe toward the right of the upper half of the sternum, and on percussion the note was found to be dull at that part. The largest nodule, the size of an average woman's thumb, was situated at the lower part of the scar. In addition there were ten or fifteen small nodules adherent either to the skin or the ribs, and four adherent to the skin in the axilla.

Thirty-one injections were given, the first seventeen of 5 c.c. each, the remainder of 3 c.c. The pain was entirely relieved after the fourteenth injection, and was not mentioned afterward by the patient. The patient remained in bed on the 4th of January, 1905, on account of severe sciatica on both sides; the weather was very damp and cold at the time. In the end of February and beginning of March, the patient complained of great pain of a rheumatic character in both hips,

ankles, wrists, and loins. This seemed to be an attack of acute neuritis of alcoholic origin. She rapidly became worse, there were patches of superficial anæsthesia, dropped wrists, and other symptoms of peripheral neuritis. Death occurred on the 12th of April, the patient having been very delirious for some days, calling incessantly for her old friend, beer. At the *post mortem*, the body was found to be well nourished. Only two nodules remained of the disease, the larger being the size of a hazel nut; neither were adherent to skin or bone, and presented microscopically all the characteristics of ordinary scirrhus cancer. The cause of death is somewhat obscure. The peripheral neuritis could hardly have been caused by the arsenic, on account of the comparatively small amount of the drug injected; but it is much more likely that the beer, of which she had been accustomed to take very large quantities, was the exciting cause. At least, it was evidently not the cancer.

Case XI, æt. 75, but who looked nearer

sixty-five than seventy-five, was sent by Dr. Gardiner of Richmond, suffering from cancer of the rectum. We had told Dr. Gardiner that we would be glad to have any inoperable cases. The patient came of a long-lived family, and did not know if any of them had died of cancer. As he had been losing weight and had suffered from considerable discomfort in the rectum, with increasing difficulty in passing any motions, he consulted Dr. Gardiner, who kindly sent him on to see if we could do anything to give relief. He was seen, and the treatment begun on the 27th of July, 1903. On putting the finger into the rectum, the bowel was found to be almost closed by a large cauliflower mass growing from the whole of its circumference. The point of the finger could be inserted into, but not through, the growth. The patient was unable to pass any but fluid motions, and it was evident that the time had arrived when colotomy would soon have been absolutely required. To have attempted to remove the whole of the growth, while physically possible,

would have certainly killed the patient. In ten weeks, after twenty-seven injections, there was a marked improvement, the weight had increased by twenty-three pounds; the finger could be passed through the growth, and, by exerting a good deal of pressure, could just reach to the upper margin of the disease. There would have been no difficulty in getting three fingers through had it been more within reach.

An examination was made in January, when it was found that half the circumference of the bowel was free from disease. Large solid motions could be passed without any difficulty.

On the 22d of February, after coming in from a walk of four miles, the old man hurt his back lifting a heavy tub, and was confined to his bed for six weeks. He never thoroughly recovered from this accident, and constantly complained of his back. The growth continued to decrease, though much more slowly than it had done before the accident, but whether on account of this it is, of course, impossible to say.

In the end of September two small patches of senile gangrene appeared on the heels. The gangrene spread, and he died on the 22d of October. The patient was not as careful with his bowels as he should have been, and, in spite of all that could be said, would not take sufficient laxative medicine. Nuclein had an extraordinary effect on him. After the first dose, which was given hypodermically sometime in the morning, the bowels began to move after getting into bed about ten o'clock. They gave no warning and everything was made in a mess. The quantity of fæcal matter passed during the night was described as enough to fill a bucket and more. The nuclein afterwards always tended to move the bowels, but naturally did not have such a great effect; but the patient was always afraid of what he called the little syringe.

Under the circumstances the case may be looked on as a satisfactory one; the patient was saved the misery of a colotomy, and became quite well until his accident. So far

as one could tell, his death was not in any way due to the cancerous growth, which steadily decreased in size.

Case XII, æt. 48, was seen on the 4th of May, 1904. For somewhere about six months the patient had been treated for piles. He had complained of increasing difficulty in passing his stools, and of almost constant pain in the pelvis, rather worse on the right side. As he did not improve with treatment, and was rapidly becoming thin and weak, he went into hospital. A rectal examination was made, and a few days afterward an inguinal colotomy was performed. Up to this time there had been no hæmorrhage from the bowel, but while in hospital there were two severe attacks of bleeding from the wound.

One aunt had died of cancer.

We had to go several miles to see this patient as he was not able to be out of his room, and we were really overpersuaded to commence treatment by his wife, who was very anxious to try something. The case was in every way

a most unpromising one; the man was emaciated almost to a skeleton, and the pulse was 104, a mere thread. On passing the finger into the rectum, a large hard mass was felt, completely closing the lumen of the gut, and almost filling the pelvis. No opening could be felt in the bowel, and no water injected into the colotomy opening passed through, but all came back by the wound. The pains in the back and rectum were said to be very severe, and the appearance of the patient corroborated this. It was rather an interesting case to try what relief could be obtained, as it was impossible to say whether the pain was a genuine cancer pain or was due to pressure. It seemed probable that it was due to the cancer itself, as it had not changed in character, though it had increased very much in intensity. The case was a very advanced one, and had it not been for the pain, one would not have felt justified in attempting anything.

On the 5th of June, after fifteen injections, examination showed that the growth was smaller

and that a distinct opening could be felt. Water injected into the colotomy opening flowed easily through the diseased part of the bowel. There was much less pain, and the patient was stronger and more able to move about.

In the beginning of July, an attack of influenza with a temperature of 101.5 degrees, and lasting a week, pulled him down, and he lost all the flesh he had gained in the previous two months. An examination was again made on the 8th of July, after the thirty-first injection, with a most satisfactory result; the growth instead of being smooth in outline was broken up and decidedly smaller, and one finger could be passed fairly easily into the mass of disease. The pulse was fuller, 90 to the minute, and in every respect the condition was favourable. The cancer pain was entirely gone, but at this date he began to complain of a new one of a screwing character in the rectum, always severe on the day of the injections. Treatment was stopped from the 25th of July until the 14th of September. During this period,

progress was satisfactory, the colour was better, and the screwing pain had almost disappeared. The growth had again decreased in size, and the pulse was of good quality at 86.

On the 16th of October, the forty-eighth injection was given. The pulse that day was 84 and the patient looked better than he had done since the treatment was begun, in the beginning of May, five months before. Next day while getting out of bed, he fell, striking his back on the fender. He had to be lifted into bed, as his legs were quite useless. The next afternoon, on going out to give the usual injection, he was found to be in a state of collapse, and was paralysed from the waist downward, being unable to pass his water. He died the same evening. It was a most disappointing ending to what seemed to promise to be a very successful case, and one which, at the beginning, seemed about as hopeless as could well be imagined; still, the man was relieved of his pain, and had for five months continuous improvement in health.

Case XIII, æt. 64, was seen in August, 1904. The history dated back eighteen months, when cancer of the rectum was diagnosed, followed by a colotomy six months later. No examination was made by us, as the patient was much afraid that it would hurt him. The disease was said to be of an ulcerative type with contraction, but no new growth. The pulse was 96. The patient suffered much, and had got into the way of having morphia injected frequently. We never were able to obtain a correct statement of the amount taken in the twenty-four hours, some saying that he had five, and others twenty grains. There was neither emaciation nor cachexia, but the patient was much troubled with discharge from the rectum.

After fourteen injections, the patient said that he felt better in every way; he could sleep well, and the fierceness of the pain was gone.

After the seventeenth, a quantity of pus was passed from the rectum. This was accompanied by pain over the lower part of the abdomen.

After the thirtieth injection, the pulse was 84, there was very little discharge, and the pain was said to be less.

In the middle of November, the patient had a chill, the temperature rose to 102 degrees. Soon afterward he became maniacal, and died.

There was always a doubt about the morphia and how much it affected him, and the case is given mostly as an example of the small result obtained, as a rule, when there is no growth, but simply malignant ulceration, the only exception to this rule being apparently Case XXX, which we believe to have been a case of cancer of the tongue in an early stage. The diagnosis of such cases is, however, so uncertain that we do not claim more for it than that it saved the patient the loss of half his tongue.

Case XIV, æt. 32, was seen on the 10th of October, 1904. Up to the age of thirty his history was as follows: for the first twenty-four years of his life he was troubled with prolapse of the bowel. He had gone through various illnesses,

including cholera, typhoid fever, dysentery, and malaria. For the past two years he had been treated for bleeding piles, and a year ago the doctor made an examination of the rectum and found no disease. For two years, however, there was hardly one day when there was no bleeding, and there was always pain. One day in July last there was so much bleeding that it flowed into his boots, and he had to send home for a change of all his clothes; what he had on having to be burned! In the beginning of October he saw several surgeons and was told that he had cancer of the bowel, that his expectation of life was limited to six months, and that the only operation which could be performed was colotomy.

When seen in the evening of the 10th of October, the patient was in a most excited condition, the pulse was soft, varying from 108 to 120 to the minute. He was very anæmic, there being not a trace of colour in his eyelids. On examining the bowel the finger came on an irregular mass commencing an inch and a

half above the anus, and on pressing downward from the outside the growth was found to be about the size of two fists. No mucous membrane was to be felt. The patient had never had syphilis, and there was no family history of cancer.

The patient slowly but steadily improved, his pulse came down to 94, and by the end of November the condition was as follows: the growth was decidedly smaller, and healthy mucous membrane could be felt on the posterior part of the rectum. The patient said, "I am now a clean man: formerly I was not, as I always had to change three times a day on account of the blood and mucus." The bleeding had entirely ceased, and there was scarcely any discharge.

In the middle of January, 1905, attacks of pain came on about three hours after the injections, and on examination, the disease was found to have lessened by one-half, and more healthy mucous membrane was to be felt. About Easter the patient passed a bone from

the rectum, and he then recalled that he had swallowed one about eight years before. A pain which he had often complained of under the ribs on the left side disappeared at this time. The passage of the bone did not improve matters in any way; indeed, about this time the patient was at his best. It was quite painful to give him an injection, he was so nervous, and even dreamt about the needle!

Eventually a colotomy was performed at home, and the patient did not survive the operation, but about which we did not receive any details. What should have been done in this case was that the patient should have had the colotomy performed at first to rest the bowel, and he should have been kept in bed for some months to give his body a thorough rest and at the same time allow of his being "fed up."

Case XV, æt. 68, was seen on the 30th of June, 1906. Two years ago the patient began to suffer from pain in the rectum, and a year later a Kraske's operation was performed. The wound never healed, and three months after-

ward there seems to have been some return of the disease. There was no history of cancer.

Examination showed that the disease had returned at the anus, and on putting the finger into the bowel, two inches of healthy gut were found and then a large mass extending up into the left iliac fossa. There were also some nodules and destruction of the skin between the coccyx and the anus. The end of the bone where it had been divided could be felt through one of the openings in the skin. The patient had lost a considerable amount of flesh, and the pulse was 96. This was a very doubtful case. Injections were given three times a week.

The pulse came quickly down to 80, but from the first the discharge was increased, presumably from the use of the trypsin.

On the 2d of March the outer part did not look so well, but the growth in the bowel was smaller and there appeared to be a larger quantity of healthy mucous membrane. Two days afterward the temperature ran up to 103 degrees, and the external parts became

much swollen and tender. On the 20th, the patient said that he always felt very weak and limp on the days when the injections of trypsin were given, consequently they were discontinued. There was another attack of fever in the end of the month. On the 10th of April, while the external parts were still red, irritable, and discharging freely, internally there was distinctly less disease and more healthy mucous membrane. It was evident that it was not desirable to continue the treatment, as generally the patient was losing ground. In our experience, it has been specially where there has been any ulceration, that trypsin has been very noticeably harmful, causing more rapid destruction of tissue than would naturally be expected, and in this case we attribute the increased discharge and unfavourable condition of the external parts to its use.

Case XVI, æt. 59, was seen on the 11th of October, 1907. After a severe attack of influenza in January last, the patient first noticed that she had difficulty with her bowels. For

about a month in June and July she had taken iodide of potassium, which had been ordered without any idea that the disease was syphilitic. This medicine, she said, seemed only to increase her misery. She is unable to do much and has to spend the greater part of the day in bed. She says that she always feels miserable, and has a great feeling of weight and oppression at the bottom of her back. This was so great that she thought of going to hospital to beg for operation, so that she might either obtain relief or die. She is soft and flabby, and altogether is much out of condition. On passing the finger into the rectum, a thick irregular growth was felt surrounding the whole of the gut, contracting the lumen sufficiently to allow only of the passage of one finger. In front, the depth was about an inch and a half, and behind fully two inches. Between this and the sacrum, and adherent to both, there was an irregular mass the size of a Tangerine orange. In August, before a holiday, the weight was 8 st. 13 lb.; after the holiday 9 st. 3 lb. On the 14th of October,

it was back to 8 st. 13 lb.; and on the 14th of November it was 9 st. 1½ lb. The pulse was 94.

The injections were begun on the 11th of October, and although they were limited in amount to 2 c.c., they made great bruises on the arms, so much so that if the patient had not felt quickly better it is probable that the treatment would not have been gone on with. On putting the injections into the buttocks there was much less trouble.

On the 24th of the month, the patient said that already she felt a different creature, while before she did not care whether she lived or died.

On the 29th, the patient moved into a new house, and although she helped in the moving, was not specially tired. A hard, well-formed motion was passed. The feeling of pressure over the sacrum is steadily getting less. An examination was made on the 14th of November, one month after the commencement of the treatment, when the condition in front of the bowel was found to have completely changed.

The finger passed more easily through the stricture, which had lost its rigidity and become elastic. The depth in front was about three-fourths of an inch, and behind the upper margin was more easily reached. The mass in the hollow of the sacrum was smaller and more irregular. There was no discharge and the finger was withdrawn without odour. The patient is able to be up all day and thinks nothing of going three or four miles, part walking and part by bus; she is, as she says, a new being! The pulse varies from 64 to 72. The patient was put on Virogen almost as soon as the treatment was begun. The case is given in this early stage as an example of the rapid improvement which may occur.

Case XVII, æt. 59, was seen on the 27th of June, 1904, suffering from malignant stricture of the esophagus low down. It was thought that some of his relations had died of cancer, but there was some doubt on this point. The disease had evidently developed rapidly, as the first difficulty in swallowing was not noticed

until April, and with the exception that he had begun to lose weight the patient had been in his usual state of health. By the month of June, the patient was rapidly being starved to death, as he could take only very small quantities of fluid at a time, and a considerable part of what he did take came back, sometimes apparently all of it. He had lost 87 lb. in weight in six months, going down from 14 st. 3 lb. to 8 st., the decrease being very much more rapid in the last month. He had been a heavy drinker all his life. The pulse was 98. Encouraged by Case XII, where an almost complete rectal obstruction had melted away under treatment, we advised the injections in the hope that the same thing would happen in this case, but told the friends that it was simply a race to see if the treatment would act quickly enough to open the gullet and thus stop the starvation.

Ten injections were given, and the result was that the patient was able to drink milk without difficulty. He was warned to be careful, but he had little self-control, and the result

was that he drank so freely that he became very sick, bringing up great masses of curd. This exhausted him so much that instead of improving he rapidly lost what little strength he had, and died on the 19th of July.

We give this case simply as one of interest, especially when compared with cases XI and XII. When the treatment was begun, the man was much too weak to stand any operation, so that he had nothing to lose. The growth must have diminished considerably, as the patient could not only drink freely, but there was room for the curd to pass back from the stomach through the obstruction.

Case XVIII, æt. 57, was seen on the 2d of December, 1903, and gave the following interesting history of her illness. Nine years before she had consulted a gynæcologist attached to one of the general hospitals on account of menorrhagia. On examination it was found that she had a fibroid tumour of the uterus. As the symptoms were not at all severe and as the patient was forty-eight years of age, she was

advised, very properly, to have nothing done, but to trust to the natural cure at the menopause. Menstruation ceased soon after the age of fifty, and the tumour became smaller, though how much smaller the patient could not say, as she was not examined again. In October, 1902, the lady consulted the same gynæcologist on account of discomfort in the pelvis, pain when the bowels moved, and some leucorrhœa. He found that she was suffering from cancer of the neck of the womb, and said that the disease was so far advanced that nothing could be done. The patient was not satisfied with this advice and had the growth scraped, then tried "high frequency," and also had a course of salicylate of soda. She thought that the scraping and high frequency did her good, and that the salicylate did her harm.

When she was seen in the beginning of December, 1903, she looked very ill, she was yellow, anæmic, and very much emaciated. The pulse was 120. On vaginal examination, the small remains of the cervix were felt, into which the

tip of the finger could be passed. Bi-manually the uterus was found to almost entirely fill the pelvis. The whole mass was much fixed, and the growth came very near on to the base of the bladder.

The patient was advised that the case was in every way an unfavourable one, and that it did not seem to be one where even any temporary improvement could be expected to be gained by treatment, that no treatment short of complete removal could hope to cure, and that this was not feasible on account of the general debility and the local difficulties. The patient was desperate to try anything, as she felt so ill and suffered so much, especially when the bowels moved. Eventually she was told that if she cared to come back, we might in the meantime change our decision. She came back in three days, and it was then suggested that a course of about thirty injections might be tried, and then if the general health and the local fixing improved sufficiently, the operation of total removal of the uterus would be performed. In less than a

month the pulse had come down to 96, and the bowels could be relieved without pain.

By the end of January, the pulse had fallen to from 82 to 86. The growth was not so fixed, but the thickening toward the base of the bladder had not entirely disappeared. Though the patient had not gained a very great deal of strength, it seemed that she would be able to withstand the operation if it could be performed within an hour, and it was agreed that if, on opening the abdomen, this was found to be impossible that it would be abandoned. The operation was performed on the 29th of January, 1904. The tumour almost filled the pelvis, and there was much adherent intestine, the lower part was thin and friable and tore off. As it would have prolonged the operation too much to take out the cervix then, we were satisfied to stop the bleeding, close the wound, and leave the cervix to be removed at a second operation.

On cutting open the specimen, the whole of the enlarged cavity was found to be filled with cancerous growth. The cervix was removed

by the vaginal route twelve days later. In front it was impossible to be at all certain that we were quite clear of the disease, on account of the closeness of the bladder.

After the operation, the patient could not be persuaded to keep up the injections, and she only had nine. This was a mistake. Strength did not return well, and the patient never really got strong, though she was able to drive out. Toward the end of June there was a suspicion that there was a small leak from the bladder. In the month of August, she went to the country, and as there was no conveyance at the country station had to walk, what was for her, quite a long way, and next day there was some hæmorrhage. She was again seen toward the end of September. On the 15th of October a fistulous opening into the bladder was found and a month later most of the water was passed through this opening. She died on the 24th of January, 1905, and it is interesting to note that the pulse varied from 72 to 84 for the last three months of her life.

A case of great interest is the best that one can

say. It is doubtful if it is wise to try anything for such a very advanced case of disease, as the patient has to go through so much and the chance of permanent recovery is so small. Certainly one cannot believe that the operation, which was performed in the end of January, could have possibly been successful two months earlier when the pulse was 120; but in surgery what is possible and what is really advisable in the interest of the patient do not always mean the same thing.

Case XIX, æt. 55, was first seen in June, 1904. At that time she had hardly begun to recover from what was described as a very bad hæmorrhage from the uterus, and the history obtained was as follows: she had gone through the menopause without trouble at the age of forty-seven. One year ago she began to have hæmorrhages from the vagina. At first they were slight, but as they quickly increased in amount she sought advice. Cancer of the uterus was diagnosed. She was sent into hospital and an attempt was made to remove that organ.

This was found to be impossible, and the surgeon appears, from what one can gather, — and incidentally it seems to be a pity that patients in hospital seem usually to be told little or nothing, — to have contented himself with scraping. At intervals of somewhere about two months, there was a hæmorrhage of an alarming nature, and when the patient was seen shortly after one of these, she was so weak and anæmic that it was impossible for her to come to us, and it was equally impossible for us to spare the time to go to her.

There was a little history of cancer in the family, as one cousin had died of the disease.

On examination it was found that the cervix had disappeared, the finger entering a cavity with a hard irregular edge; the uterus itself was fixed, and deposit was found in both broad ligaments. The patient was not wasted, though she said that she had lost flesh.

In December of the same year, happening to be in the neighbourhood, and having received several letters asking if nothing could be done

to give her help and relieve her pain, she was seen again. There had not been any hæmorrhage for over a month, and the general condition was much improved. Locally, the ulceration had increased and the fixing and size of the uterus were greater. On looking through a speculum, a large irregular opening was seen at the top of the vagina, extending far backward, and surrounded by a narrow red ring of tissue, but there was no appearance that there had ever been a cervix, so entirely was it destroyed. There was a constant, profuse, and fœtid discharge, and in spite of attention to cleanliness, the whole house was disagreeable from the odour. She had lost more flesh and suffered much from pain in the back, and also in front over the pubes. The pulse was fair at 90.

In a case of this kind one is apt to be overpersuaded, and it was agreed to give the injections to relieve the pain, though the patient lived at a most inconvenient distance, and, like the great majority of the cases, was not in a position to offer any return for our services.

The case was rather an obstinate one, and the pain was not relieved until six injections had been given, and by that time she had improved so much that she was able to come to town for treatment. After double that number, there was a very decided lessening in the amount of discharge, and even in the patient's room little odour was to be detected, the offensiveness had so much decreased. The amount of improvement in this direction will be realised when it is mentioned that, instead of using many diapers in the day, a little cotton-wool changed once was sufficient! There was a backache when the patient was tired, otherwise she was quite free from pain. An examination was made at the end of February after thirty injections had been given, and some decided improvement was found. There was a distinct cervix and the opening into the uterus was smaller. There was a great deal of redundant mucous membrane. The following day her usual medical attendant made an examination, and unfortunately was evidently anxious to be very thorough.

He hurt so much that the patient screamed with the pain. She began to bleed shortly afterward, and the next day there was a severe hæmorrhage, the first for nearly four months.

Ten days later she was again able to come to town, but looked very shaky, and complained of some return of the pain and increase in the amount of discharge. The pulse was 76. The injections were recommenced on the 11th of April after an interval of six weeks.

Toward the end of May, an examination with the speculum showed a cervix of almost normal appearance except toward the back, where it looked as if it were a little eaten out. The uterus felt smaller and looser, and there was less hardness to be felt in the broad ligaments. As regards her general appearance, she looked a well woman.

Sixty injections had been given by the end of July, but in the months of August and September there were three severe hæmorrhages. The interior of the uterus was then thoroughly destroyed with caustic potash. There was quite a good deal of bleeding after the operation, but

by the beginning of November the patient was better, and, injections being resumed, she commenced to improve quickly. Quite at the end of December trypsin was injected in addition. She continued to improve until the middle of February when she began to fail rapidly, and died, apparently of septic absorption, on the 12th of March, 1906.

A *post-mortem* examination revealed a pelvis full of putrid pus, with a soft, friable shell of a uterus, and little disease or thickening in the broad ligaments. There was an inch of fat on the abdominal wall and proportionally all over the body, a very much better general condition than when the treatment was begun some fifteen months before. Besides, the patient was relieved of her pain, and was able to live like other people most of the time, instead of being a misery to herself and to others from the offensiveness of the discharge.

Case XX, æt. 59, was seen on the 21st of April, 1905. She complained of agonising pain and loss of strength. Her history was as follows:

she had married late in life and had never been pregnant. She passed through the menopause without trouble at the age of forty-eight, and, indeed, until she began to feel unwell eighteen months ago, had never been ill.

There was no case of cancer among any of her relations. The first symptom she noticed of her present illness was a vaginal discharge, soon followed by pain in the back, and she was treated for ulceration of the womb for six months. Getting no better, she went to a hospital for women, and was there scraped. When she left hospital, one of the medical staff recommended her to consult a doctor in the north of London who was supposed to be able to cure cancer, but after a six months' course of pills and fluid medicine was not any better. At the Middlesex Hospital the case was considered a hopeless one and nothing was recommended. For three weeks she had been taking an infusion of violet leaves without benefit. It is wonderful what a hold this treatment has obtained without, so far as we know, a single authentic case of recovery.

The patient was markedly cachectic, was thin, and the pulse was 100. On vaginal examination, it was found that the cervix had entirely disappeared, there being simply a rough ulcerated opening in its place. The whole of the posterior fornix was included in this ulceration. The uterus was big and fixed by a large amount of infiltration in the broad ligaments. Altogether fifty injections were given of 3 c.c. each, treatment only being undertaken to relieve the agonising pain. After five injections the pulse slowed down to between 72 and 80 and remained at this till shortly before the end. The pain was relieved at once and there was not a trace of it after the eleventh injection.

On the 19th of May there was thrombosis of the right external saphenous vein which cleared up by the 25th of the month. In July the patient had slight uterine pain after being shaken in a bath chair. In the beginning of August a sharp attack of diarrhœa pulled her down and the injections were discontinued.

The patient died peacefully on the 14th of September, and almost the last words she was able to utter were to express her gratitude for the six months' relief from pain obtained from the injections.

Case XXI, æt. 56, but looks fully ten years older, was seen on the 22d of September, 1906. She gave the following history: for about one year she had not felt well and for some months suffered from constant headache. She went to New York in April and then noticed that her abdomen was getting larger, and two months afterward she consulted a London doctor who diagnosed cancer of the uterus. The following month the abdomen was opened and part of the growth was removed, at least this was what the patient was told.

There was no family history of cancer.

The patient was weak, anæmic, specially thin, and the pulse was 96. The abdomen was distended by some ascitic fluid and a mass filling the left side, extending well across the middle line and reaching to within two

inches of the umbilicus. The cervix was large, swollen, and lacerated, but there was no ulceration. A hard growth in the posterior fornix was continuous with the abdominal tumour.

This was quite a hopeless case, but as the patient was very anxious to be made well enough to get home to the West Indies in November she was given sixteen injections of 3 c.c. The tumour diminished decidedly, but on the 9th of October there were evident signs that the heart was failing, shown by swelling of the feet with increasing pulse rate, and the patient died on the 23d of October.

This case may be looked on as a complete failure, the reduction in size being of interest, but of no practical importance. It was too late and had it not been for the great desire of the patient to be able to go home, nothing would have been attempted. This would evidently have been the proper course to have pursued under ordinary circumstances.

Case XXII, æt. 50, was seen on the 13th of

January, 1904. She first noticed that she was jaundiced toward the end of May, 1903, and on consulting a doctor was told that she had cancer of the liver. Since then she has steadily lost ground in every way, and in January the woman was emaciated, weighing 7 st. 8 lb., the skin and conjunctivæ were deeply jaundiced, the stools were clay-coloured, and the urine was almost black. She complained of rapidly progressing weakness, of severe but not constant pain in the liver, and of the most intense irritation of the skin. She stated that her appearance was so noticeable that people jeered at her if she went out of doors, and even the policemen smiled at the sight of her. She was too weak to go out alone at this time.

On examining the abdomen the liver was found to extend from the fourth rib to level with the crest of the ilium, and there was an irregular mass of stony hardness in the position of the gall bladder.

There was no known family history of cancer.

The patient had been a hard-working woman

all her life, and though her husband was a heavy drinker she was abstemious. This case was undertaken with really very little expectation of doing the patient good, but more as an experiment to see how a damaged liver would be affected by the injections. The dose was never more than half what we usually give.

On the 13th of January the first injection was given. On that day the pulse was 80; VII min. of a 5 per cent of nuclein were also administered hypodermically.

14th. The patient felt faint after the first injection. The pulse had fallen to 72.

16th. Third injection, no nuclein, patient looks better, but the irritation of the skin is very bad.

18th. Fourth injection, there was no pain yesterday, and there was freedom from irritation the day before.

19th. Fifth injection and nuclein.

21st. Sixth injection, feels better and has no pain, but is sleepless.

26th. Patient has had a bad attack of diarrhœa, probably caused by the nuclein, which was not continued.

28th. Tenth injection, is sleeping better and there is less irritation of the skin.

7th of February. Fifteenth injection, the liver dulness now extends only from the sixth rib to midway between the costal margin and the umbilicus.

13th. Nineteenth injection, there is much less irritation.

25th. Twenty-ninth injection, the conjunctivæ are not so yellow and the urine is paler.

5th of March. Thirty-sixth injection, for the first time since September of last year the stools were slightly coloured.

14th. Forty-third injection, the patient feels well and looks much less yellow.

15th. To-day the stools are clay-coloured and the urine dark. This is perhaps due to catarrh, as the patient has a bad cold.

19th. Bile is again flowing into the intestines and the fæces have become brown in colour.

7th of April. Sixty-third injection, the liver itself is almost of normal size with the exception of the enlargement in the position of the gall bladder, which still projects markedly. The weight is 7 st. 7 lb., a loss of one pound only since the treatment was begun, nearly three months ago.

20th of May. Eighty-second injection, the patient is apparently well and the treatment is to be discontinued meanwhile.

5th of September. The patient after having been well is troubled with the irritation of the skin. Injections were recommenced and by the 1st of November sixteen had been given. In other respects the patient has little to complain of.

13th of March, 1905. There is no note of interest until this date, the patient having kept well with occasional slight attacks of skin irritation. The weight to-day is 7 st. 9 lb. There is a little jaundice accompanied by light-coloured stools.

24th. The patient has not been at all well,

and on examining the liver to-day it was found to be enlarged and smooth like an ordinary congested one, and reached as far down as the umbilicus. The pulse was 66.

29th of May. Nine injections have been given since the last note. The patient seems to be quite well and is putting on flesh. The liver can barely be felt below the costal margin.

9th of January, 1906. The liver is two inches below the edge of the ribs. There has been some return of the irritation.

Twenty-nine injections were given between the 26th of January and the 6th of April, but the patient steadily lost weight, which had got up to 8 st. 9 lb. in the previous year. It now fell to 7 st. 1 lb.

The patient had a return of the jaundice and continued to lose weight until September, when injections, to the number of fourteen, were given. Although in July the woman looked very ill, by November she was putting on weight and was able to do her housework.

One hundred and fifty-one injections, ex-

cluding those consisting of nuclein, have been given in a little over thirty months!

In October, all the glands on the right side of the neck became inflamed and those in the anterior triangle suppurated. On the left side they became slightly enlarged. The abscess on the right side was opened and drained on the 20th of the month and continued to discharge until the end of November.

In February, 1907, the patient was not so well, and the injections were begun on the fifth, and were continued thrice weekly until the 22d of April, when an abscess in the arm, due to the injections, had to be opened. In May, the injections were given twice a week, and in June once a week. Toward the end of the month a large abscess formed in the right breast, and the wound in the neck opened. In the month of August the patient went to the Middlesex Hospital on account of the suppurating breast and neck, and because we were away.

On the 28th of October the patient was well

and able to do her washing! There was no skin irritation, though the stools were rather light. The urine was a good colour but for the first time contained some sugar. The left lobe of the liver was slightly enlarged, otherwise the organ seemed to be healthy.

Case XXIII, æt. 50, was seen on the 24th of March, 1904. For some months the patient said that she had noticed what she called a nob in the right side of the abdomen. Eight weeks ago it was noticed that she was jaundiced and about the same time the patient observed that the stools were clay-coloured. The pulse was 84, and she complained of intolerable irritation of the skin, the whole of her body and limbs being covered with marks of her scratching. The patient was very deeply jaundiced, and the liver measured 13 inches from above downward. There was also a little free fluid in the peritoneal cavity.

The irritation became bearable after five injections and never got very bad again. The liver rapidly became reduced in size, coming

down to under 10 inches instead of 13, but no bile appeared. Toward the end of July ascitic fluid began to increase with great rapidity and it had to be drawn off. After its removal, the liver could be felt exactly like an ordinary hob-nailed organ.

We are of the opinion that the injections were much too strong, being of the usual strength, and that it would have been better to have given them weaker and not so often, as the liver seemed to be reduced in size much too quickly. After the tapping, bile flowed freely into the intestines, but it was too late to do good.

Case XXIV, æt. 65, a coachman, was seen on the 28th of May, 1904. His history was that ten months before he began to feel tired and languid, and three months ago the liver was found to be enlarged, cancer being diagnosed. There was no pain, but deep jaundice and enormous œdema of the legs, thighs, scrotum, penis, and abdominal wall. The liver extended far below the umbilicus and almost

filled the abdomen. He was very breathless and the pulse was 96.

This was evidently not a suitable case, but as we had declined to treat a relation of the man's mistress, who died within six weeks and justified our refusal, we hardly cared to decline a second case.

After the third injection the patient was less breathless and could digest his food better.

After the sixth the legs were softer, he could button his waistcoat, and his boots felt too big.

After the eleventh it was noticed that while his legs were decidedly softer and smaller, the abdomen was beginning to fill with fluid.

On the 23d of June he was tapped, 78 ounces being removed, but the size of the abdomen did not seem to be lessened. He died a week afterward of a low form of septicæmia.

This case is one which might in all probability have improved as much under other forms of treatment, and the injections most likely acted more as a tonic than in any other way.

Case XXV, æt. 67, was seen with Dr. Pearson

in April, 1903, and gave the following history of her illness. She had noticed a swelling in the left hypochondriac region nearly a year before and some short time afterward had to give up her calling of a sick nurse, on account of increasing debility. She was thin enough to be described as a bag of bones, had well-marked cancerous cachexia with great anæmia, and was very constipated. A large tumour distended the abdomen, filling the whole of the left side and extending fully four inches across the middle line. Seventeen injections were given. The tumour rapidly decreased in size, but the patient did not feel better and treatment had to be discontinued. The old lady died in September, and Dr. Pearson wrote: "The growth had very markedly diminished in size, and though she was very much more emaciated, no sign of it could be seen externally, the abdomen being perfectly flat. The growth proved to have primarily arisen, I should surmise, in the descending colon, which was adherent to the parietal peritoneum.

It had undergone considerable degeneration, and was very friable. I cannot express to you how surprised I was to find the bulk of it so much diminished. The lumen of the gut was perfectly patent." The microscopic report said, "The larger section (colon) is infiltrated with a degenerated colloid carcinoma, which is probably of the columnar-celled type, though its cells are now much altered."

Case XXVI, æt. 52, was seen in August, 1907. The disease was evidently acute, as the patient had been apparently quite well in May. In that month she began to vomit her food almost immediately after it was taken, and the friends began to notice that she was getting rapidly thinner. There was no pain, but great acidity when she vomited. The pulse was good.

On examining the abdomen, an exceptionally large mass was felt in the epigastric and left hypochondriac regions, the greater part of the stomach being evidently involved in the disease.

Treatment was advised and was carefully carried out by the patient's doctor, but as there was no improvement after fifteen injections, it was thought advisable not to continue.

This is an example of the difficulty of treating successfully cases where a vital organ is attacked.

Case XXVII, æt. 54, recommended by a lady who knew of case II, was seen on the 3d of April, 1907. Some months before, a sister had been operated on in the North for cancer in the rectum, the operation ending in an exploratory one only. It was proposed that we should see if this sister was a suitable one for treatment; but the surgeon persuaded the friends that nothing could do any good, though he knew nothing whatever about the treatment suggested, and we were willing that he should be told the exact nature of the remedy if we considered it a suitable case!

For about two years the patient had suffered from catarrh of the stomach and constipation, culminating in an attack of intestinal obstruc-

tion in March. The abdomen was opened by a well-known surgeon, who found a mass of malignant disease involving the transverse and ascending colons, the small intestine, mesentery and stomach, with glandular infection behind. Removal of the disease was evidently impossible and the bowel was short-circuited to relieve the obstruction. Three weeks afterward, on the 3d of April, the patient was said to have made no progress; she was still in bed, was a bad colour, looking typically cachectic, and was anæmic and very thin, but did not know how much weight she had lost. The pulse was shabby and small and jumped up from 72 to 100 on slight exertion and did not come down quickly. She felt weak and ill, had not so much pain as discomfort and a great feeling of misery. The scar was very red and there was a tender spot in the position of the pylorus. She was much troubled with flatulence and slept badly, three to four hours in the night being considered a fair night's rest.

The first injection of 2 c.c. of the weaker

strength was given on the 13th of April, and the thirteenth on the 4th of May. At first the injections seemed to stir up the flatulence and to cause "flushings." Now there is some improvement she is not so uncomfortable and thinks that she has put on some flesh; weight in her clothes 7 st. 7 lb. The abdominal belt does not fit as the abdomen has become smaller. On the 10th of May she went out for her first drive, and on the 26th it was found that she had gained two pounds in weight. The thirtieth injection was given on the 9th of June, the result so far being that the patient looked better, had less indigestion, and was gaining a little weight. On examining the abdomen no definite growth could be felt, but there was decided resistance over the whole of the upper part, with tenderness on pressure as before. The lady returned to town on the 9th of July. The weight had gone up to 8 st. 7½ lb., and the pulse was fuller. There was still the feeling of resistance, but the tenderness on pressure was absent. Sleep was much improved, usually six hours every night, and on

one occasion she had walked a mile with two rests. The injections again stirred up the flatulence and flushings. On the 25th the weight was 8 st. 11 lb. On the 7th of August the forty-fifth injection was given and the patient went to the country for a month.

On the 6th of September the weight was 9 st. 2 lb., weighed in the same clothes every time. While she was away she got a chill and was very miserable for a couple of days. There is to-day less flatulence, and the feeling of resistance is quite gone, and, on deep pressure, a mass the size of two adult thumbs can be felt where the tenderness has been. The scar is beginning to fade, a sure sign of returning health. She has walked as far as a mile and three-quarters. The husband asked the doctor who had been present at the operation, and who had attended until the treatment was begun, in what condition he would expect his wife to be, and the answer was that she should be breaking up by now. This third course of injections did not set up the flatulence. On the 30th of November the patient continued

to be in good health, without any signs of the disease lighting up.

Case XXVIII, æt. 64, was seen on the 13th of February, 1905. The patient, a rather stout woman, comes of a long-lived family with no history of cancer.

Six years ago she had her first operation for something internal; the second was performed eight months ago, and the third, an unfinished one, four months since. Up to within from eight to ten weeks there was no pain, then it began to come occasionally. For the last three weeks it has been very bad indeed,—torture the lady called it, and her daughter said the mother cried most of the day on account of it. The patient is almost an invalid and the pulse is 100.

On examination there is a hard mass found in the left groin, measuring about four inches in every direction. It is not defined and the skin covering it is red and inflamed.

Within half an hour of the first injection the pain had disappeared! The patient improved for a time and was able to walk without her

stick, but this improvement was only of a temporary nature and the patient did not live long, though fortunately the pain was hardly ever complained of and it never appeared at all severely.

We are inclined to think that the growth diminished too quickly at first, and that it would have been better if the reduction in the size had been slower. Patients do not seem to do so well when a growth is very quickly reduced in size.

Case XXIX, æt. 53, a widow, was seen in June, 1903. The history she gave was as follows: in the beginning of 1902 she consulted a well-known surgeon specially identified with the surgery of the bladder on account of frequent desire to pass water with some pain, and the appearance of mucus and frequently blood in the water. The amount of blood passed varied greatly, there might be none for some days and then there would be what the patient described as a large loss. The bladder was opened from above and something was removed.

Before leaving the Surgical Home the patient asked if the growth was of a cancerous nature, and was told that she need not be anxious, and that the symptoms would never recur. Within three months of the operation all the symptoms had returned as badly as before. This was the history up to the time we saw her. She was evidently then beginning to "go down the hill"—she was soft and flabby, and the pulse was 98 with little strength. One aunt and two cousins had died of cancer. On making a digital examination from the vagina a hard swelling was felt situated on the left side, apparently in the bladder wall. It measured roughly one and a half inches in length by one in breadth. On using the electric light in the bladder, the surface of the swelling, an oval, perhaps one by half an inch, was seen to present the typical appearance of a case of cancer; there was no polypus, and it did not have the appearance of a simple papilloma. The patient was asked to see the surgeon who had operated, but would not consent to do so. As this was mostly for our

own satisfaction, and as the growth could not have been removed without making a large opening into the vagina, and even then complete removal would have been doubtful, the consultation was not pressed, and injections of iodipin and arseniate of iron were begun. After a fortnight, during which time there was no hæmorrhage, an attack came on but was not so severe as usual. Improvement was then steady until September, when the patient lost a large quantity of blood. The injections were recommenced after the holidays and the patient very steadily improved, both locally and in general health.

Altogether over one hundred injections were given, with the result that the growth in the bladder wall became reduced until it felt no larger than a split pea, and on electrical illumination presented the appearance of a small patch of congestion. The symptoms did not entirely disappear, but on the whole the patient was able to live like other people. Late in the summer of 1906 she was not so well, and her friends persuaded her to see another bladder

surgeon. What the condition was at this time we do not know, as we had not made an examination for a long time. The bladder was again opened and something was removed. The same prognosis was given as before the first operation, but the symptoms returned within a few weeks. We have heard that the patient is still fairly well. It seems probable that there was a malignant base in the bladder wall with papillomatous projections, and that these projections were removed at the two operations, as no expert operator would have attempted to do anything to this case as it was in June, 1903. It is now considerably more than four years since the treatment was begun; and it may fairly be claimed that this was a case of malignant disease, in spite of the diagnosis of the two surgeons, more especially as their prognosis was completely wrong, and also that the patient has lived for some years longer than she would have done without the treatment. In June, 1903, the utmost estimate of life would have been one year.

Case XXX, æt. 37, was first seen on the 15th of

October, 1903, on account of an ulcer on the right side of the tongue. He said that when he was a boy at school he was much troubled by small ulcerations on his tongue, and the schoolmaster was in the habit of touching them with a stick of caustic. As near as possible he fixed the time since the ulceration commenced at two months. The ulceration was continuously painful and the pain was increased when eating or drinking. It was hard, measured about an inch and a quarter in length and one-quarter of an inch at its widest part. The ulceration had not the appearance of a syphilitic one, and the patient said that he had not had the disease. One brother died in the Cancer Hospital, but apparently not of cancer, and there was no family history of malignant disease. The glands all over the body were carefully examined, but none were found to be enlarged. Five grains of iodide of potassium and one-sixteenth grain of perchloride of mercury were given three times a day for a month, with at first great improvement in the appearance and size of the ulcera-

tion, though the pain was not in any way relieved. The improvement soon stopped and the ulceration then commenced to spread rapidly.

The injections were from one cause and another not commenced until two months after the patient was first seen. By that time there seemed to be no doubt about the malignancy of the disease. Had the generally recognised surgical practice been followed, the removal of half the tongue would have been the proper and only course of treatment, as the disease had not yielded to anti-syphilitic remedies.

The injections had a peculiar effect as they set up cramp, not only in the arm into which the injection was given, but also, though in a lesser degree, all over the body.

The ulcer had begun to get smaller, and the pain had been reduced after the eighth injection, and it had entirely healed by the seventeenth. Twenty-one were given in all.

In October, 1905, the patient had a thrombosis in both legs, due to varicose veins.

September, 1907. For the past two years the legs have given an immense amount of trouble, and there have been varicose ulcers almost constantly. Bandaging was said to give too much pain to be continued for any length of time, although on several occasions when elastic bandages were kept on there was decided improvement. Every form of treatment imaginable was tried,—anti-syphilitic, anti-tubercular, anti-rheumatic, etc. Finally, injections of iodipin alone were tried and proper bandaging insisted on. This was followed by rapid improvement, but the bandaging was soon neglected and relapse followed in spite of the injections of iodipin. At last the patient realised that he must persevere with the bandaging and put up with the pain for the time. The result has been most satisfactory, the mechanical support evidently being all that was required.

Case XXXI, æt. 40, complained first of a sore throat in April, 1904. He consulted a doctor, who told him that there was a growth, and two operations were performed without an anæs-

thetic, but the patient was told neither what was the matter nor what had been done.

In the month of December he was shown at the laryngological society before over twenty of the Fellows. It was unanimously agreed that the case was one of epithelioma, that it could not be removed by operation, and that in all probability the sufferings of the patient would come to an end within six weeks or so.

He was seen on the 30th of January, 1905, and said that there was no cancer among his relations,. but that his mother had died of dropsy. This might, of course, have been due to malignant disease, and is a good example of what we have said about the difficulty of being sure of the family history of most patients. He looked wasted and said that he had lost a considerable amount of weight, and he complained of great pain in the left cheek and ear, with stiffness of the jaw and inability to swallow solid food. He said that he had not been able to swallow anything solid for over six months. His taste for smoking had also entirely left him.

The breath was very offensive. The pulse was 96, small and thready.

On looking into the mouth it was seen that the disease had covered the whole of both the soft and hard palates, touching the teeth all round. It extended on to both tonsils, and, passing over the teeth on the left side, was attached to the outer side of the jaw and the cheek. Numerous glands could both be seen and felt on both sides of the neck. The poor man was living in the greatest misery, he suffered severely, and in all our experience we have never met with any one who suffered so much and was at the same time so patient. His strength was going, both from the ravages of the disease and from the want of power either to masticate or to swallow proper food. It was an interesting case to see if the pain could be relieved in such an advanced state of disease, and at the same time to watch for any general improvement and increase in the expectation of life. The injections were given almost daily and after the third there began to be improvement both in the pain and

in the offensiveness of the discharge. When he had had seven injections, he said that the jaw felt looser, that there was no pain, and that he could rest his left cheek on the pillow—a thing he had not been able to do for months. The odour of the discharge had much lessened, and he also found that his breathing was easier. He was able to swallow solid food after the twelfth injection, and said that no one could believe the pleasure he derived from eating a chop after six months of slops. His taste for smoking had also come back. The pulse had improved in quality and was down to 70. A healthy piece of palate was exposed behind the front teeth and there was less disease at the back, as was shown by the molar teeth being exposed. By the beginning of March his ability to swallow had so much improved that he could get down a pill without water. Toward the end of the month there was much toothache and two molars had to be removed; with both there was suppuration at the roots. An abscess also formed in the cheek, and, pointing externally, had to

be opened through the skin. After a fortnight in the country, without treatment, the cheek looked more swollen, though in other respects the man felt well. Another tooth had to be extracted. Until the end of May he felt very comfortable, the disease on the palate was slowly decreasing, while that on the jaw and cheek remained stationary. Two loose pieces of the growth had to be removed, as they were falling back into the throat. On the 30th of the month, injections of trypsin were begun and were given every alternate day. Apparently their effect was not good, as the disease had started to increase by the middle of June, opening up the scar in the cheek and projecting through it.

On the 5th of July treatment with X-rays was begun and quickly healed the opening in the cheek. In October the ulceration again broke through the skin and continued to increase. In spite of this the patient kept wonderfully well and was able to eat any kind of solid food until the middle of January when he began to fail in every way, and he died on the

7th of February, a year after the treatment was begun.

This was one of the cases where trypsin seemed to be very harmful; but though it undoubtedly did harm and caused the disease to grow more quickly than it had been doing, it cannot be said that permanent recovery was prevented by its use. There was evidently too much disease to be cured, but the treatment gave the man a year of comfort by freeing him from the great pain and allowing him to eat solid food.

Case XXXII, æt. 53, was seen on the 12th of May, 1904. This patient was a medical man and had first noticed a growth the size of a small hazelnut on the frænum of the tongue in October, 1903. At about the same date he felt an enlarged gland on the right side of the neck. In January, 1904, the growth in the mouth began to ulcerate, and three weeks later there was a severe hæmorrhage. There was no history of malignant disease in the patient's family.

As operation from the first had been entirely

out of the question, the previous treatment had consisted in X-rays, radium, injections of soap, and of Chian turpentine. He was of opinion that none of these remedies affected the growth one way or the other, but the injections of Chian turpentine were too painful to be continued; indeed, the patient said that on the whole the disease was the lesser evil. On examination, an ulcerating mass situated in the floor of the mouth and extending on to the gums on both sides was seen; there was also a large mass of glands on the right side of the neck. The pulse was 96, and the general appearance was bad. There was not a great deal of pain, but much discomfort with offensive discharge. To lessen this disagreeable odour, the patient was in the habit of using a wash of bichloride of mercury. He carried about with him a small bottle of a strong solution and whenever he had an opportunity simply guessed what he thought would be a sufficient amount of water to add. He was often warned that this was not safe and that he ought to be more careful, but being a doctor he was

probably not so careful as an ordinary person would have been. There was more or less bleeding every day. Thirty injections seemed to check the disease; the disagreeably smelling discharge was lessened in amount and became almost odourless; the bleeding almost stopped; there was not so much discomfort; and the growth inside the mouth had diminished and the glands were looser and more defined. The doctor himself was satisfied and considered that the disease was checked.

The patient went home for the month of August. Symptoms of a very severe attack of mercurial poisoning developed, the gums became soft and spongy, and as the general health decreased the malignant disease increased. It seemed to be useless to recommence treatment, and the patient himself felt that his chance was gone. Though he lived on until March, it is improbable that the case would have ended in complete recovery even without the mercurial poisoning. The patient was more hopeful than we were, as the injections were the only

thing which had touched the disease in the slightest degree. The poisoning was undoubtedly due to the reckless use of a too strong solution of the mercury.

Case XXXIII, æt. 71, was seen in March, 1905. In September of the previous year he noticed that he had some difficulty in swallowing. This steadily became worse till he could only get down slops. While there is no actual pain, there is constant discomfort, and he says that he is rapidly getting thin and weak.

His wife died of cancer, but he knows of no history of the disease on his own side.

The cancer was situated in the larynx, the upper part of which was seen to be ulcerated.

The patient had twenty injections, which made him more comfortable certainly, and seemed to check the disease somewhat, but there was not sufficient improvement to encourage one to continue the treatment. This is another example of a case of malignant ulceration.

Case XXXIV, æt. 60, was first seen on the 26th of June, 1905. The history of this case

Hospital. The diagnosis arrived at was much the same, viz., a very rapidly growing cancer, which by a very extensive and formidable operation might possibly be completely removed. The patient thought that while the operation was described as possible, the surgeon was not anxious to undertake it.

The local condition when the patient was seen a fortnight after the visit to the Cancer Hospital was as follows: there was a large mass of glands extending from the symphysis menti to the angle of the jaw on the right side, adherent to the bone; inside the mouth, there was a hard swelling in the floor extending far back, and in it and close to the bone an ulceration nearly an inch in depth and almost two inches in length. The least that would have been required to be done if an operation had been attempted would have been removal of half the tongue, half the lower jaw, half the floor of the mouth, the whole of the glands in the anterior triangle and the parotid on the right side. It seems to us doubtful if any

surgeon with any extensive experience of such cases would submit himself to any such operation. The patient could eat no solid food and had to subsist entirely on fluids. He was losing weight and the pulse was 96.

On account of the extreme rapidity of the growth, a very unfavourable prognosis was given. It seemed impossible to believe that such an extensive amount of disease could have grown in the time stated, nine weeks, but the patient, an intelligent man, and his family were certain of their dates. Suffering was so great and so little encouragement had been given to induce him to undergo the operation that he agreed to have the injections to obtain relief. Very large doses were given and the pain was distinctly better after the third, and he could eat solid food with comfort after he had had six. By this time the pain had entirely disappeared.

On the 24th of September the forty-first injection was given. The patient was more than holding his own; he had gained weight,

the pulse was 84, the glands were smaller, and the ulceration had begun to heal. Up to this time about five injections had been given per week. The treatment was discontinued for a fortnight, but in this short time he went back in so far as the local condition was concerned. Improvement followed recommencement of the injections.

On the 23d of December injections of trypsin were unfortunately begun. At first this seemed to do good as the glands diminished in size more quickly, though the condition of the mouth remained stationary. On the 1st of January, 1906, it was noted that the glands, though they were fully smaller by a half than they had been originally, were becoming cystic. Increase in size was then rapid and four days later ℥ii of bloody serum were removed by aspiration. The aspirator had to be frequently used until the 27th of the month, when the skin broke, and a large amount of brain-like matter came away. From now onward until the date of his death in June, progress

was steadily downhill, and more and more of the mouth and neck sloughed away, until before his death there was an opening almost large enough to admit one's hand. Part of the right half of the lower jaw necrosed. There were several attacks of hæmorrhage, and the patient suffered very much for six weeks before he died. It would be interesting if we could know what would have happened if the trypsin had not been used. It seems to us that the arsenical injections would not have cured him, as the case was a most virulent one as shown by the great rapidity of growth at first, and the quickness with which the disease asserted itself after the forty-first injection, when they were discontinued for two weeks. Until the trypsin was used the disease was held in check, and a little over, for five months. In such an acute case it looks as if there had been some specific action on the disease not simply temporary improvement, and it is probable that the trypsin was responsible for the rapid destruction of tissue, different altogether to any we have

ever seen in cases of cancer except when this drug was being used.

Case XXXVI, æt. 77, but looking decidedly younger, was seen in April, 1907.

His story was that two years before he had a feeling as if there was a piece of seaweed in his mouth. This sensation increased, and on looking into the mouth a large mass was seen growing from the root of the tongue, adherent to the floor of the mouth and lower jaw, and extending across the mouth. The tongue had little mobility and could not be put out at all. He could swallow fairly well, but with discomfort. An ulcer on the nasal septum was also to be seen. The patient had had syphilis many years ago, but no enlarged glands could be felt. The pulse was 96 and he had not lost much flesh.

After twelve injections, the treatment being carried out by his own doctor, the swelling was rather smaller especially in front, he could swallow better, and the tongue was more movable. The pulse had come down to 78.

Unfortunately the treatment had a most extraordinary effect on his bowels, as on injection days, after the bowels were moved, he was prostrated with pain for several hours.

When another twelve injections had been given, they were temporarily discontinued, and mercury was tried instead. The result was not satisfactory, as the patient quickly became salivated.

At the end of August the patient said he felt rather better and was anxious to continue, though the growth had begun to break down. The injections which were at first given twice a week had to be reduced to once on account of the bowel pain. In the middle of October, after a fortnight's stoppage of treatment, the growth was extending toward the cheek.

CASES OF SARCOMA

Case XXXVII, æt. 40, was seen first on the 2d of June, 1903. The case is a most instructive one and presented several points of interest. The previous history was as follows: the woman had always been very poor, she had eight children, and there had been several miscarriages. In regard to her general health she said that she had never ailed anything. It was as well, considering where she lived and what she and her family had to live on. In August of the previous year her attention had been drawn to a lump in her right breast, and on attending at St. Mary's Hospital, she was admitted as an in-patient, and the growth, not the breast, removed. The pathological report was "no sign of malignant disease — it was a specimen of interstitial mastitis," but the gentleman who kindly communicated

with us added that he did not know how much of the growth had been examined. There seems, however, to have been some doubt about the exact nature of the disease, as the patient was warned that she must come back immediately if she noticed any return. Almost at once after leaving hospital the patient became pregnant and she thought that the growth returned very soon after this happened. She was a stupid woman, and it did not seem to occur to her that she should do what she had been told, and it was only on the persuasion of the midwife who attended her in her confinement, in the beginning of May, that she was induced to go back to the hospital. She went on the 1st of June, and the surgeon was evidently much annoyed that she had not done what she had been told and come earlier, as he said that it was then too late and that she could only expect to live a very short time.

On the 2d of June, *i.e.* ten months after the operation, a large cystic mass was found involving the pectoralis major, somewhere about

the size of a couple of billiard balls. There was a second flattened-out and apparently solid growth over the upper part of the sternum, and in addition there were several small cystic nodules.

To apply ordinary surgical principles to such a case meant, in our opinion, to do nothing, for it would have been impossible to remove the mass over the sternum, as it was adherent to the bone. The prognosis was unfavourable, as the patient was losing ground and beginning to feel weak. At the best, a very few weeks, possibly eight or ten, would have been the utmost time one could expect her to live.

It was a difficult question to know what one ought to do. Here we had a poor woman whose life was a valuable one to her husband and her children, whose work seemed to be done, and who had a very short time to live. Should we try an experiment or should we simply let her die? In such a case the difficulty is to determine whether there is any likelihood of the experiment doing the patient

good or whether we would only gain information.

It was evident that the first thing to do would be to remove the cystic part of the disease to prevent it bursting through the skin. To deliberately remove part of such a growth is such foolishly bad surgery, under ordinary circumstances, that we advised the poor woman to try another hospital and come again if nothing were done, hoping in this way to get rid of her. All the surgeons at the New Hospital and one from Charing Cross saw the case, as it was considered an interesting one and one deserving of study, and all were unanimously agreed that the patient could only live a few weeks, and that nothing could be done. She then came back to us and we had to tell her that we would do what we could. The cystic portion had so thinned the skin that rupture was imminent and it was evident that much misery would be saved if that part could be removed and the wound healed. It therefore seemed to be justifiable to perform a partial

operation and then see what the injections would do. To have attempted to remove the part over the sternum would of necessity have left an open wound.

On the 17th of June the cystic mass along with part of the pectoral muscle was removed. Microscopic examination pronounced the disease to be a small, round-celled sarcoma.

The wound healed by first intention in spite of the surroundings, which were not of the sweetest.

We rather wondered what a student accustomed to the cleanliness of the hospitals would have thought, for the street was dirty, the house was dirty, and the patient was only cleaned up for the occasion! Injections of 5 c.c. were begun seven days later and were at first given daily. By the end of August she was in good health, able to look after the children, and do her work and washing. Forty-eight injections had been given in just under ten weeks. Several small cysts were projecting through the scar, and there was one granulating mass the size

of a threepenny bit near the upper part of it. The growth over the sternum was not so large, but the bone itself had become much thickened.

Encouraged by the good general condition, she being apparently a well woman instead of being on her death-bed, a somewhat extensive operation was performed on the 7th of September, everything abnormal being removed as widely as possible. The growth over the sternum turned out to be a flattened-out cyst filled with papillomatous-like material and was incorporated with the periosteum, which had to be scraped off the bone with a sharp spoon. Again the specimen was found to be a small, round-celled sarcoma. The injections were stopped for ten days only and were then continued daily until the 16th of October. The patient was able to be up a week after the operation, though the part over the sternum had to be left open and made to heal by granulation. At the end of September a small cyst appeared in the upper angle of the wound and soon after another at the other end. After

an interval of twelve days the injections were begun again on the 28th of October and were continued until the beginning of April. In the whole ten months of treatment between one hundred and fifty and two hundred injections were given.

In the beginning of December the cysts suddenly started into activity, and this increase was found to be coincident with the patient becoming pregnant, as was shown by a miscarriage at about six weeks in the middle of January. There was temporary improvement after the miscarriage, but soon, though the general health kept good, the mass over the sternum began to grow again.

On the 26th of February a third operation was performed; but the wound, which again could not be brought together, never healed, and by the middle of March there was a fungating mass projecting from it. This was kept in check by repeated applications of caustic potash.

In the beginning of June there was some

difficulty in breathing, there was œdema of the lungs and also of the face and arms, with great enlargement of the superficial veins which became varicose, showing that there was some internal deposit. Nine additional injections did good, the last being given on the 4th of July.

By the end of July there was a return of the difficulty in breathing, and it was ascertained that the woman was three months advanced in pregnancy. She died on the 24th of August, having taken to her bed only one week before. About the middle of the month some fluid appeared in the peritoneal cavity.

Pregnancy seemed to have a disastrous influence on this case. As soon as the woman became pregnant, the disease increased with great rapidity. The quick return after the first operation in hospital, the sudden increase in December, and the evidence of internal deposit in June, all were evidently connected with this condition. Until within a few days of her death there was never any pain. The

patient did not know of any relations who had died of cancer; but as she was a most ignorant woman, could not read or write, her evidence is not of much value on this point. Fortunately on almost every other matter we did not have to depend on her statements.

It seems certain that this patient gained a year of good health by means of the injections, assisted by the operations. Neither would have been sufficient, and it is not likely that all the surgeons who saw the case were mistaken, and that under ordinary circumstances the patient would have lived for nearly fifteen months. We say lived, not merely existed, because for over a year she was as if nothing were the matter with her. Undoubtedly she was a strong woman naturally, and this helped to make the operations a simple matter for her; but the fact remains that in the beginning of June, 1903, it was unanimously agreed that she would not live three months at the outside, and that twelve months later she was still well enough to look after a family of eight children.

Case XXXVIII, æt. 53, was seen in August, 1903, having first noticed the swelling, to be described, in June, two months before. He looked an old, broken-down man, and was really hardly able to come to see us. The pulse was small and 104.

In July he was admitted into Charing Cross Hospital. While there he was anæsthetised and a long incision made over the tumour. No part of the growth was removed.

In August there was a flat mass apparently between one and two inches in thickness, quadrilateral in shape, measuring between five and six inches across, extending from the right of the middle line well into the left iliac region. The growth appeared to be situated in the deeper layers of the abdominal wall.

Now we would probably not treat such a case, though it is still difficult to resist trying to help, while at the same time one may be gaining information. The reasons why the case ought not to have been touched were the rapidity of the growth, and as the man was intelligent his

account could probably be depended on, and the very great effect the disease had had on his general health. In two months he had passed from being in good health to being a decrepit old man.

Injections, of the original weak strength, were given three times a week. They acted marvellously, and by the end of September the man felt quite well. There was as quick improvement as there had been rapid deterioration. The pulse was good at 80, and he was putting on flesh. The growth, however, did not lessen much in size.

On the 9th of October the scar opened and pus was discharged, and on the 13th of November there was no doubt that a communication with the bowel had been formed. In spite of the trouble and annoyance given by the fistula, the patient's general health kept good until the end of January. After that time he steadily lost ground and died on the 16th of April.

The growth was evidently a rapidly growing sarcoma, though there was no examination after death to definitely settle this point. The possi-

bility of its being a gumma was carefully gone into, but no evidence was found to justify such a diagnosis.

The improvement in the general health was most marked. In two months from the time that the growth was first noticed the man had lost ground tremendously, and the treatment within half that time had made him apparently well, in spite of the disease.

Case XXXIX, æt. 42, single, was first seen in April, 1904, and gave the following history: so far as she knew none of her relations had died of malignant disease and though she herself was not robust, her general health had always been good. In the beginning of 1902 a growth described as being the size of a large orange was removed from the left breast. This had been noticed for six weeks. It had not given rise to much pain and what there was, was probably due to the weight. The operator said that the growth was a healthy one and that there would be no return. However, a second tumour had to be removed within two years, in January,

1904. This growth was also said to be benign. In April of the same year we were consulted about a third tumour the size of a large walnut and advised its removal along with all that remained of the breast. This was done on the 15th of April, but not quite satisfactorily, as there was a large amount of scar tissue over the sternum.

The following is the microscopic report: "Fibro-sarcoma. It is arranged in bundles of spindle cells with much fibrous change in the material. Hence the degree of malignancy is low."

Thirty injections were given as soon as the patient was able to be out of doors. Fourteen months after this third operation, a fourth had to be performed, as a small nodule had appeared over the sternal end of the scar. This nodule was removed freely and the microscopic examination was most satisfactory as no trace of malignancy was to be found. Both examinations were made at the same agency, and attention was specially drawn to the first report. The

patient did not know if either of the first two growths had been examined microscopically, but thought not, so to this extent the case is not complete. It is, however, interesting to note that while the third growth was malignant though not very acutely so, in the fourth the tumour consisted of fibrous tissue alone and was a simple, non-malignant growth. This, combined with the fact that there has been no return for over two years, or no return of malignant disease for over three and a half years, seems as far as one case goes to point to the treatment being able to lessen the tendency to the formation of malignant disease. One must, however, be careful not to lay too much stress on a single case.

Case XL, æt. 36, married, was seen on the 20th of May, 1904. She did not know much about her relations, but so far as she was aware there was no cancer in the family. Since the birth of her first child, ten years before, there had been pain and discomfort in the left breast. In December, 1903, the breast began to swell and became much more painful. She attended as

an out-patient at one of the hospitals, and after three months of treatment by local applications and medicines, a transverse incision was made from the nipple to the edge of the breast.

When first seen in May the breast was found to be much swollen and there was a partially healed wound, discharging pus. At first the breast was in such a tender condition that it could not be satisfactorily examined, but after a few weeks' rest and proper care much of the tenderness was relieved, and on careful examination a hard nodule the size of a hazelnut was felt. No mention of this had been made at the hospital, so we have no guide as to how long it had been growing. It is quite likely that it may have been present when the patient was attending the hospital, as careful examination was required to find it, and to any one conversant with out-patient rooms and the numbers requiring to be seen in a limited time it can easily be supposed that proper attention was not given.

The patient was steadily losing flesh.

The breast was removed on the 25th of June.

The hard nodule was sent to be examined microscopically and was pronounced to be a large, spindle-celled sarcoma. Thirty injections were given commencing on the 11th of July, and for three and a half years there has not been any return.

Too much stress must not be laid on this case, for if we are to reason from a single one we would have to condemn all out-patient rooms, which would be as absurd as to claim a discovery based on the evidence of a single case.

Case XLI, æt. 63, had always enjoyed good health until she was over fifty years of age, when she began to suffer from symptoms due to gall-stones. At the age of 57 the stones had been successfully removed, but in the summer of 1904 she noticed that there was some hardness in the scar. She was a very reticent woman about her health, though her husband was a doctor, and at first, not connecting in any way this hardness with some feeling of weakness, did not say anything about it. There was no pain at this time. So far as we could learn, none of her relations

had died of any form of malignant disease. The growth was entirely removed on the 5th of August, 1904, but before the end of September there was extensive recurrence of the disease in both groins, and in the right axilla. A second operation on the three places was performed, and a third was considered advisable for recurrence in the left groin three months after the first. Although this operation was a very extensive one, the disease could not be entirely removed. Before the wound had healed, nodules had appeared on the left labium, thigh, and abdomen almost as high as the umbilicus. The patient was confined to bed, and the surgeon who had performed the operations gave her not more than three months to live, and was afraid that the death would be a very painful one.

When the injections were begun on the 20th of November the condition was deplorable; the thigh, labium, and lower left half of the abdomen were as red as a piece of uncooked meat, and there were numbers of nodules in the skin varying in size from a split pea to a bean. The

patient had lost weight, was flabby and weak, and was unable to be out of bed. The pulse was 112.

The treatment was specially slow in getting any hold on the disease, which continued to spread, and it was only because the husband knew that the injections were the last chance that he could be encouraged to persevere. After about the tenth or twelfth injection, the progress of the disease seemed to be checked and the general condition had begun to decidedly improve. The surgeon who had not seen the case meanwhile was asked what he thought of her going to Tunbridge Wells for Christmas. His answer showed that he considered the case not only hopeless but likely to prove fatal quickly, as he said, "If you take her, you will never bring her home again." The patient was anxious to go and we advised the change, having confidence that the improvement once begun would continue.

On the 9th of February the thirtieth injection was given. The patient was then in her usual

state of health, able to go out in the evening, do her own shopping, etc., and had gained close on two stone in weight.

In the beginning of April the right arm began to swell and some hardness was found in the axilla. A second course of thirty injections was begun and was completed on the 7th of August. No trace of disease could then be found anywhere. The patient went abroad until the end of October and came home apparently quite well. Toward the end of the month she complained of pain in the left groin and on examination the leg and thigh were found to be swollen. On deep pressure a mass could be felt in the lower part of the abdomen. The injections were resumed, but without any beneficial effect. The patient became weaker, the heart dilating and causing œdema of the lungs, and she died on the 13th of December. She suffered a good deal during the last month from swelling of the legs and the chest trouble, but fortunately the disease did not appear again on the surface, and she was spared that misery.

The question arises in this case of how much surgery ought to try to do. Was the second operation justifiable on sound surgical principles? Secondary growths appearing in three different parts of the body a few weeks after the first operation point conclusively, one would think, to a condition of general infection, and that the disease in no way could be considered a local one. It is therefore difficult to understand on what principle the operations were performed. The third operation three months after the first seems to have been lacking in any justification whatsoever. Not only correct surgical principles but even ordinary common sense seem to have been ignored. On the other hand, the injections, while they were not successful in the end, gavè the patient nine months of good health instead of the three months of acute suffering which appeared to be certain after the last operation, and a comparatively easy death.

The pathological report of the growth removed at the first operation stated that it was a round-celled sarcoma.

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